STOLL
KEENON
OGDEN
PLLC

DAMON R. TALLEY, PSC
PO BOX 150
112 N. LINCOLN BLVD.
HODGENVILLE, KY 42748

DAMON R. TALLEY
PHONE: (270) 358-3187
FAX: (270) 358-9560
damon.talley@skofirm.com

April 8, 2016

Mr. James W. Gardner, Esq.
Acting Executive Director
Public Service Commission
PO Box 615
Frankfort, KY 40602

RECE[illegible]
APR 0 8 2016
PUBLIC [illegible]
COMMISSION

RE: Hardin County Water District No. 2
(Construct, Finance, Rates; 278.023)

Case No. 2016-00148

Dear Mr. Gardner:

Enclosed for filing are the original and ten (10) copies of the Application of the Hardin County Water District No. 2.

The Application is being filed pursuant to the provisions of KRS 278.023 and 807 KAR 5:069 which require Commission approval within 30 days.

Should you need any additional information, please let me know.

Yours truly,
STOLL KEENON OGDEN PLLC

Damon R. Talley

Damon R. Talley, Attorney for
Hardin County Water District No. 2
damon.talley@skofirm.com

DRT:ms
Enclosures
cc: Hardin County Water District No. 2

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED
APR 08 2016
PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF HARDIN COUNTY WATER	)
DISTRICT NO. 2 SEEKING: (1) A CERTIFICATE OF	)
PUBLIC CONVENIENCE AND NECESSITY	)
AUTHORIZING CONSTRUCTION OF MAJOR	)
ADDITIONS AND IMPROVEMENTS TO ITS	) CASE NO.
WATER SYSTEM; (2) APPROVAL OF REVISED	) 2016-00148
WATER SERVICE RATES AND CHARGES; AND	)
(3) AUTHORIZING THE ISSUANCE OF CERTAIN	)
SECURITIES, PURSUANT TO THE PROVISIONS	)
OF KRS 278.023 AND 807 KAR 5:069.	)

** *** **** ******* **** *** **

APPLICATION

** *** **** ******* **** *** **

The Applicant, Hardin County Water District, No. 2 (the "District"), respectfully tenders this Application, pursuant to KRS 278.023, 807 KAR 5:069, and all other applicable laws and regulations, and requests that the Public Service Commission of Kentucky (the "Commission") issue its Order: (1) granting a Certificate of Public Convenience and Necessity authorizing the District to construct major additions and improvements to its water system (the "Project") for the purpose of furnishing an adequate supply of pure and potable water for domestic, agricultural, commercial, and industrial use in the area served by the District; (2) approving the proposed adjustment of water rates and charges to be levied and collected by the District; and (3) authorizing the issuance of certain securities by the District. In support of this Application, and in conformity with the regulations of the Commission, the District states as follows:

GENERAL INFORMATION

1. The District was established by Order of the County Court of Hardin County, on June 23, 1965, pursuant to the provisions of KRS Chapter 74. The District is now, and has been since its inception, regulated by the Commission. All records and proceedings of the Commission with reference to the District are incorporated into this Application by reference.

2. The mailing address and other contact information of the District are as follows:

Hardin County Water District No. 2
360 Ring Road
P.O. Box 970
Elizabethtown, Kentucky 42702

ATTENTION:	James R. Jeffries, General Manager
TELEPHONE:	(270) 737-1056
FAX:	(270) 737-2301

3. The electronic mail address of the District's General Manager is jjeffries@hardincountywater2.org.

4. The electronic mail address of the District's attorney, Damon R. Talley, is damon.talley@skofirm.com.

5. The governing body of the District is its Board of Commissioners. The District is a public body corporate with power to make contracts in furtherance of its lawful and proper purposes as provided in KRS 74.070 and all other applicable laws.

6. In conformity with KRS 74.020(1)(a), the County Judge Executive of Hardin County has entered various Orders establishing a five (5) member Board of Commissioners and appointing the present Commissioners, who are residents of the District. The present members of the Board of Commissioners, and their respective offices, are as follows: Michael L. Bell, Chairman; Morris L. Miller, Secretary-Treasurer; Tim Davis, Commissioner; John Effinger, Commissioner; and Cordell Tabb, Commissioner. Each of the five (5) Commissioners has qualified for office.

7. As of December 31, 2015, the District provided retail water service to approximately 27,200 customers. It has no wastewater customers.

PROJECT DESCRIPTION

8. The primary purpose of the Project is to obtain a supplemental supply of potable water. The Project has been identified as either the Supplemental Water Supply Project or as the Louisville Water Company

Interconnection Project (the "LWC Project") over the past few years. This Project will enable the District to obtain a supplemental supply of potable water from the Louisville Water Company (the "LWC"). Initially, LWC must make available to the District up to 2.0 million gallons per day (the "MGD"). By 2021, LWC must make available up to 5.0 MGD. The maximum amount that LWC must make available is 10 MGD. Having the availability of 10 MGD of potable water will guarantee that the District can provide adequate service to its customers for the next 20 years.

9. The Project consists of the installation of approximately 42,200 linear feet of 24-inch diameter ductile iron water transmission main and associated appurtenances, a pump station, and other major water infrastructure improvements. No new customers will be added as a result of this Project. The Project is more fully described in plans, specifications and reports prepared on behalf of the District by Kenvirons, Inc., Frankfort, Kentucky and on file in the office of the District (see paragraph 37 of this Application for more details).

PROJECT COST AND FUNDING

10. The total Project cost is $15,000,000. The District proposes to finance the construction of the Project by the issuance of its water system revenue bonds in an amount up to $5,000,000 (the "Series 2016A Bonds") to

the United States of America, acting by and through the U.S. Department of Agriculture, Rural Development (the "USDA-RD"). The Series 2016A Bonds will bear interest at a rate not to exceed 4.125% per annum and will mature over 40 years. The balance of the Project cost will be funded by grants totaling $5,500,000 and an applicant contribution in the amount of $4,500,000 from the District's unrestricted reserves. The financing sources are summarized as follows:

USDA - RD Loan	$5,000,000
BRAC Grant	5,000,000
KIA Grant	500,000
Applicant Contribution	4,500,000
Total	$15,000,000

11. The USDA-RD portion of the Project Funding will be funded initially from the proceeds of an interim financing loan to be obtained from the Kentucky Rural Water Finance Corporation at an interest rate of 2.60% per annum. Once the Project has been substantially completed, the Series 2016A Bonds will be issued and USDA-RD will advance its funds to pay for, and take delivery of, the Series 2016A Bonds. The interim financing loan will be paid and the balance of the USDA-RD funds will be used to complete the Project.

12. The District has entered into an agreement with the USDA-RD which sets forth the specific terms and conditions for obtaining the loan in a

principal amount of up to $5,000,000, which will be represented by the Series 2016A Bonds. The Letter of Conditions dated May 5, 2014, which contains these terms and conditions, is attached hereto and incorporated herein by reference as **Exhibit 1.**

NEED FOR PROJECT

13. The District's consulting engineers, Kenvirons, Inc., Frankfort, Kentucky (the "Engineers"), have prepared a Preliminary Engineering Report (the "PER") which is attached hereto and incorporated herein by reference as **Exhibit 2**.

14. Section 3.0 of the PER documents the need for the Project. Section 4.0 of the PER outlines the various alternative water sources considered by the District and its Engineers.

15. The Engineers determined that the most feasible alternative is to obtain a supplemental supply of potable water from LWC (See Sections 4.0 and 6.0 of the PER).

16. Normally an applicant seeking a Certificate of Public Convenience and Necessity to construct a water system improvement project funded by USDA-RD relies solely upon the information contained in the PER to establish the need for the Project. Because of the magnitude of this proposed Project, however, the District has provided additional information

beyond that required by 807 KAR 5:069 to assist the Commission in its understanding of the purpose of, and need for, the Project and its scope.

17. As a public utility subject to Commission jurisdiction, the District is obligated to provide **adequate service** to its customers. What is "adequate service"? KRS 278.010(14) defines "adequate service" as:

> [H]aving sufficient capacity to meet the **maximum estimated requirements** of the customer to be served during the year following the commencement of permanent service and to meet the **maximum estimated requirements** of other actual customers to be supplied from the same lines or facilities during such year and to assure such customers of reasonable continuity of service. (Emphasis added).

18. 807 KAR 5:066, Section 10(4) further defines a water utility's obligation to procure an adequate source of supply. This regulation provides that "[t]he 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**." (Emphasis added).

19. The Commissioners of the District are very cognizant of their responsibility to provide adequate service to customers. During droughts, ice storms, and other emergencies, this mantle of responsibility is quite heavy.

20. For 14 consecutive days during the summer of 2012, the District experienced an average customer demand in excess of 90% of its total treatment capacity. The District's daily production **averaged** over 75% of its rated capacity during a 61-day period in the months of June and July of 2012.[1] Its **maximum day** production was 98%[2] of its rated capacity. Because of the low flow of the Nolin River during drought conditions, the Kentucky Division of Water will not increase the District's water withdrawal permit. Therefore, expanding the White Mills WTP is not an option.

21. It should be noted, however, that during the 2012 drought, the District's White Mills Water Treatment Plant (the "White Mills WTP") was its sole treatment plant. The White Mills WTP has a rated capacity of 8.1 MGD. Since then, the District has acquired the City of Elizabethtown's water system assets, including its City Springs WTP.[3]

22. The City Springs WTP has a rated capacity of 3.0 MGD, but its total production is dedicated to serving the customers in the former Elizabethtown Water Service Area. In addition, a portion of the production from the White Mills WTP is used to supplement the customer demand in

---

[1] *Annual Report of Hardin County Water District No. 2 to the Kentucky Public Service Commission for the year ending December 31, 2012* ("Annual Report") at 48.

[2] *Id.* at 54.

[3] Case No. 2014-00289, *Application of Hardin County Water District No. 2 for Authority to Execute a Promissory Note in the Principal Amount of $8,000,000 Pursuant to the Provisions of KRS 278.300 and 807 KAR 5:001* (Ky. PSC Oct. 23, 2014).

the former Elizabethtown Water Service Area. Thus, the District's water supply problem still exists. The acquisition of the Elizabethtown Water System did not reduce the District's urgent need to obtain a supplemental supply of potable water.

23. In 2015, during the peak demand season from May through September, the White Mills WTP routinely experienced peak demand days of 92 to 95% of its rated capacity. Likewise, on peak demand days, the City Springs WTP routinely operated at 93% of its rated capacity. Neither the White Mills WTP nor the City Springs WTP is hydraulically capable of operating above its rated capacity. Therefore, the need to construct the proposed Project is still urgent.

24. Because of continued customer growth, the District has long known that eventually the Nolin River would no longer be an adequate water source. In essence, the District would, some day, "outgrow" the Nolin River. That "day" has arrived!

25. Throughout the years, the District has looked north, south, east, and west for additional sources of water. As early as 2001, the District identified LWC as the most reliable and cost effective source of

supplemental water.[4] LWC has excess treatment capacity and an abundant supply of water from the Ohio River.

26. LWC and the District executed a Letter of Intent on April 3, 2008 whereby LWC expressed its intent to provide a supplemental supply of water to the District, and the District expressed its intent to purchase a supplemental supply of water from LWC. On March 19, 2013, LWC and the District concluded years of planning, studying, and negotiating when they executed a Water Purchase Agreement (the "Agreement).

27. The Agreement is a typical bilateral executory contract. Each party is obligated to take certain actions at certain future dates. Under the terms of the Agreement, LWC must make certain infrastructure improvements to enable it to deliver certain specified quantities of water to the District.[5] Thereafter, it must continue to make available the specified quantities throughout the 50-year term of the Agreement.

28. Likewise, the District is required to take certain actions. First, it must construct certain infrastructure improvements. Hence, the need to obtain a Certificate of Public Convenience and Necessity from the Commission.[6] Under the terms of the Agreement, the District 2 must

---

[4] *Hardin County Regional Water Feasibility Study*, July 2001.

[5] LWC has already constructed substantially all of the infrastructure improvements necessary to deliver up to 2 MGD to the District. LWC has informed the District that all improvements will be finished no later than May 1, 2016.

[6] KRS 278.020(1).

purchase at least 60,000,000 gallons per year once the necessary infrastructure improvements have been constructed. The minimum purchase quantity "stair steps" each year until 2021 when it reaches the plateau of 1 MGD or 365,000,000 gallons annually.

29. Based on its most recent demand projections, the District reasonably believes that it will need to purchase at least as much water from LWC as the minimum amounts specified in the Agreement. The high customer demand experienced by the District for an extended period during the summer of 2012 and the peak demands during 2015 confirmed the District's prior demand projections.

30. The Commission has already approved the Agreement between LWC and the District "contingent upon the District's filing of an Application for a Certificate of Public Convenience and Necessity and the Commission's granting of the Certificate of Public Convenience and Necessity.[7]

31. It is the opinion of the District's Board of Commissioners that the public health, safety, and general welfare of the citizens and inhabitants of the area served by the District will be promoted and served by the construction of the Project and the proposed method of financing the Project.

---

[7] Case No. 2013-00252, *Investigation into the Proposed Water Purchase Agreement Between Louisville Water Company and Hardin County Water District No. 2* (Ky. PSC Sept. 12, 2014), Ordering Paragraph 4.

32. The construction of the proposed Project will not result in a wasteful duplication of facilities nor an economically inefficient investment in facilities.

33. The District respectfully represents to the Commission that there is a genuine need and demand for the Project.

ENGINEERING REPORTS

34. The District's Engineers have also prepared an Addendum to the Preliminary Engineering Report and a Final Engineering Report. The Addendum to the Preliminary Engineering Report and the Final Engineering Report are attached hereto and incorporated herein by reference as **Exhibits 3** and **4**.

35. These Engineering Reports (**Exhibits 2**, **3**, and **4)** contain, among other things, a description of the Project, cost estimates and other pertinent financial data and projections, data justifying the proposed rate schedule, and proposed plans for financing the Project.

36. Maps showing the location and route of the 24-inch diameter Water Transmission Main, the Colesburg Pump Station, and the other water infrastructure facilities included in the Project are attached as **Exhibit 5**.

37. The Engineers have prepared detailed plans and specifications, for Phase 1 of the Project. Phase 1 consists of Contract 26 – Colesburg

Pump Station and Contract 27 – Water Transmission Main. Pursuant to 807 KAR 5:069, Section 2(5), one (1) copy of the Plans and Specifications for Contracts 26 and 27 have been provided to the Commission on electronic storage medium (Compact Disk) in portable document format. See **Exhibit 6**.

38. The District has caused public advertising to be made according to law soliciting competitive bids for the construction and installation of Phase 1 of the Project (Contracts 26 and 27); has received, opened and considered the construction bids; and has received data prepared by the Engineers showing the bids received and the recommendation of the Engineers with respect thereto. The Engineers' bid tabulations and best bid recommendations for Contracts 26 and 27 are attached hereto and incorporated herein by reference as **Exhibits 7** and **8**.

39. The USDA-RD has approved the District's proposed award of the best bid for Contract 26 - Colesburg Pump Station and Contract 27 – Water Transmission Main as evidenced by the Letter of Concurrence in Bid Award dated April 6, 2016, which is attached hereto and incorporated herein by reference as **Exhibit 9**.

40. Attached hereto and incorporated herein by reference as **Exhibit 10** is a certified statement from the District's Chairman, based upon the statements, representations, and professional opinions of the Engineers for the District, concerning the following:

A. The proposed plans and specifications for the Project have been designed to meet the minimum construction and operating requirements set out in 807 KAR 5:066, Section 4 (3) and (4); Section 5 (1); Sections 6 and 7; Section 8 (1) through (3); Section 9 (1); and Section 10;

B. All other state approvals or permits have already been obtained for Phase 1 and Phase 2 of the Project;

C. The water rates proposed by the District shall produce the total revenue requirements recommended and set out in the engineering reports; and

D. Setting out the dates when it is anticipated that construction will begin and end.

41. The District does not contemplate having the Project constructed with any deviation from minimum construction standards or operating conditions of the Commission.

42. The proposed adjusted water rates and charges of the District are set forth in paragraph 26 of the Letter of Conditions (**Exhibit 1**) and in the Notice of Proposed Adjustment of Water Rates which is attached hereto and incorporated herein by reference as **Exhibit 11**.

43. The District has published, prior to filing this Application, a Notice of Proposed Adjustment of Water Rates, pursuant to Section 3 of 807 KAR 5:069, in The News-Enterprise, Elizabethtown, Kentucky and The LaRue County Herald News, Hodgenville, Kentucky, which are the newspapers of general circulation in the District's service area.

44. This Notice sets out the proposed effective date of the proposed rate adjustment, the current rates and the proposed rates of the District, a brief description of the Project, and all other information required by 807 KAR 5:069, Section 3(4).

45. A copy of the newspaper clipping and an Affidavit of Publication evidencing publication in both newspapers will be submitted to the Commission promptly upon receipt thereof.

PROPOSED EFFECTIVE DATE OF RATE ADJUSTMENT

46. The District proposes an **effective date of July 1, 2017** to implement the proposed water rates required by USDA-RD. The reasons for selecting an effective date of July 1, 2017 are two-fold: (1) the Project will not be substantially completed and most of the new facilities will not be placed into service until after July 1, 2017; and (2) the use of July 1, 2017 will preserve the gradual four-step phase-in rate plan for the former Elizabethtown customers (the "Elizabethtown Transitional Rate Plan"). If

the Commission approves the proposed rates required by USDA-RD, then on July 1, 2017 all District customers, including those in the former Elizabethtown Water Service Area, will pay the same rates. The District will, once again, have a unified rate structure.

47. In PSC Case No. 2014-00289, the Commission approved the four-step Elizabethtown Transitional Rate Plan agreed to by Elizabethtown and the District and set forth in their Asset Purchase Agreement. **Exhibit 12**, which is attached hereto and incorporated herein by reference, contains a table depicting the Elizabethtown Water Rates and the timetable for each step increase. **Exhibit 12** also contains the Appendix to the October 23, 2014 Order in PSC Case No. 2014-00289.

48. Steps 1 and 2 of the Elizabethtown Transitional Rate Plan have already been implemented. Step 3 will be implemented on July 1, 2016. The fourth and final step will be implemented on July 1, 2017.

49. Implementing the USDA-RD required rates set forth in the Letter of Conditions (see **Exhibit 1**) prior to July 1, 2017, will have major repercussions, including the following: (1) customer confusion; (2) public outcry; (3) rate shock for customers in the former Elizabethtown Water Service Area who would be forced to pay higher rates sooner than expected; (4) customer complaints to the City of Elizabethtown elected officials, to the

District, and to the Commission; (5) "loss of face" by the District, its Commissioners, and it employees; and (6) loss of trust in the District.

50. The RD Letter of Conditions does **not** specify an effective date for the new rates. While the Elizabethtown Water System acquisition was being reviewed by the Commission, Thomas G. Fern, State Director of USDA-RD, wrote a letter to the District dated September 29, 2014 authorizing the District to utilize "two (2) rate schedules during the transitional rate period ending on July 1, 2017."[8]

51. The District will not commence incurring any interest or principal payment obligation to USDA-RD on the 2016A Bonds until after July 1, 2017. As previously stated, the Project will not be substantially completed until after July 1, 2017. The new facilities will not be "booked" for accounting and depreciation purposes until they are placed into service. Therefore, delaying the implementation of the new rates will not have an adverse financial impact on the District.

USE OF SURPLUS FUNDS

52. The District plans to use any contingency funds remaining after construction of the Project to make additional water system improvements as set forth in the Addendum to the Preliminary Engineering Report and in the

[8] The letter from Thomas G. Fern, State Director, dated September 29, 2014, was filed in the official case record in PSC Case No. 2014-00289 on September 30, 2014.

Final Engineering Report and other water system improvements under consideration for construction by the District (the "Additional Facilities").

53. As the Project nears completion and the approximate amount of contingency funds available for additional construction is determined, the District will prioritize this list and seek approval from USDA-RD to use the surplus funds to construct some of these Additional Facilities. These Additional Facilities will be made with the approval and under the supervision of the USDA-RD as required by 807 KAR5:069, Section 4.

54. The construction of these Additional Facilities will **not** result in a change to the rates set forth in the USDA-RD Letter of Conditions, for which approval is sought in this case. The District will notify the Commission, in writing, prior to commencing construction of these Additional Facilities. In addition, the District will provide the Commission with a statement from USDA-RD authorizing the use of the remaining Project funds in the manner proposed prior to commencing construction of the Additional Facilities.

[Remainder of page intentionally left blank]

WHEREFORE, the Applicant, Hardin County Water District No. 2, pursuant to KRS 278.023, respectfully requests the Public Service Commission of Kentucky to grant:

A. A Certificate of Public Convenience and Necessity authorizing the construction and installation of the Project;

B. An Order authorizing the District to issue its Series 2016A Bonds in an amount up to $5,000,000 at an interest rate not to exceed 4.1215% per annum, maturing over 40 years; and

C. An Order approving, for water service rendered on and after July 1, 2017, the proposed schedule of water service rates and charges as set forth in the Letter of Conditions filed herewith as **Exhibit 1**.

Respectfully submitted,

HARDIN COUNTY WATER DISTRICT NO. 2

By: ______________________
Michael L. Bell, Chairman

STOLL KEENON OGDEN PLLC

By: ______________________
Damon R. Talley
Counsel for Applicant
P.O. Box 150
Hodgenville, KY 42748-0150
PH (270) 358-3187 FAX (270) 358-9560
damon.talley@skofirm.com

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF HARDIN)

The undersigned, MICHAEL L. BELL, being first duly sworn, deposes and states that he is the Chairman of the Board of Commissioners of the Hardin County Water District No. 2; that he has read the foregoing Application and has noted the contents thereof; and that the statements of fact set forth therein are true and correct.

IN TESTIMONY WHEREOF, witness the signature of the undersigned on this April 8, 2016.

HARDIN COUNTY WATER DISTRICT NO. 2

BY: Michael L. Bell

Michael L. Bell, Chairman

Subscribed and sworn to before me by Michael L. Bell, in his capacity as Chairman of the Board of Commissioners of the Hardin County Water District No. 2, on this April 8, 2016.

Damon R. Talley

NOTARY PUBLIC, STATE AT LARGE

NOTARY ID: 534472

MY COMMISSION EXPIRES: 6-9-19

EXHIBIT LIST

HARDIN COUNTY WATER DISTRICT NO. 2

Exhibit 1	Letter of Conditions
Exhibit 2	Preliminary Engineering Report
Exhibit 3	Addendum to Preliminary Engineering Report
Exhibit 4	Final Engineering Report
Exhibit 5	Maps
Exhibit 6	Plans & Specifications (on Compact Disk) Contract 26 – Colesburg Pump Station Contract 27 – 24-inch Diameter Transmission Main
Exhibit 7	Bid Tabulations
Exhibit 8	Engineer's Best Bid Recommendations
Exhibit 9	RD Letter of Concurrence
Exhibit 10	Certified Statement of Chairman
Exhibit 11	Notice of Proposed Adjustment of Water Rates
Exhibit 12	Water Rates – Former E-Town Water Service Area

EXHIBIT 1

Letter of Conditions

USDA
United States Department of Agriculture

RECEIVED MAY 0 5 2014

Rural Development

Kentucky State Office

771 Corporate Drive,
Suite 200
Lexington, KY
40503

Voice 859.224.7300
Fax 859.224.7425
TTY 859.224.7422

May 5, 2014

Mike Bell, Chairman
Hardin County Water District No. 2
PO Box 970
Elizabethtown, Kentucky 42702

Dear Chairman Bell:

This letter establishes conditions which must be understood and agreed to by you before further consideration may be given to the application. The loan will be administered on behalf of the Rural Utilities Service (RUS) by the State and Area office staff of USDA Rural Development. Any changes in project cost, source of funds, scope of services or any other significant changes in the project or applicant must be reported to and approved by USDA Rural Development, by written amendment to this letter. Any changes not approved by Rural Development shall be cause for discontinuing processing of the application. It should also be understood that Rural Development is under no obligation to provide additional funds to meet an overrun in construction costs.

This letter is not to be considered as loan approval or as a representation as to the availability of funds. The docket may be completed on the basis of a RUS loan not to exceed $5,000,000; an Base Realignment Authority Committee grant (BRAC) in the amount of $5,000,000; a Kentucky Infrastructure Authority Grant (KIA) in the amount of $500,000; and an applicant cash contribution in the amount of $4,500,000.

If Rural Development makes the loan, the interest rate will be the lower of the rate in effect at the time of loan approval or the rate in effect at the time of loan closing, unless the applicant otherwise chooses. The loan will be considered approved on the date a signed copy of Form RD 1940-1, "Request for Obligation of Funds," is mailed to you.

Please complete and return the attached Form RD 1942-46, "Letter of Intent to Meet Conditions," if you desire that further consideration be given to your application.

The "Letter of Intent to Meet Conditions" must be executed within three weeks from the date of this letter or it becomes invalid unless a time extension is granted by Rural Development.

If the conditions set forth in this letter are not met within 210 days from the date hereof, Rural Development reserves the right to discontinue the processing of the application.

In signing Form RD 1942-46, "Letter of Intent to Meet Conditions," you are agreeing to complete the following as expeditiously as possible:

1. Number of Users and Their Contribution:

   There shall be 16,916 water users, of which all are existing users. The Area Director will review and authenticate the number of users prior to advertising for construction bids.

2. Drug-Free Work Place:

   Prior to grant closing, the District will be required to execute Form AD-1049, "Certification Regarding Drug-Free Workplace Requirements (Grants) Alternative I - For Grantees Other Than Individuals."

3. Repayment Period:

   The loan will be scheduled for repayment over a period not to exceed 40 years from the date of the Bond. Principal payment will not be deferred for a period in excess of two years from the date of the Bond. Payments will be in accordance with applicable KRS, which requires interest to be paid semi-annually (January 1st and July 1st) and principal will be due on or before the first of January. Rural Development may require the District to adopt a supplemental payment agreement providing for monthly payments of principal and interest so long as the bond is held or insured by RUS. Monthly payments will be approximate amortized installments.

4. Recommended Repayment Method:

   Payments on this loan shall be made using the Preauthorized Debit (PAD) payment method. This procedure eliminates the need for paper checks and ensures timely receipt of RD loan payments. To initiate PAD payments, Form RD 3550-28, "Authorization Agreement for Preauthorized Payments," should be signed by the District to authorize the electronic withdrawal of funds from your designated bank account on the exact installment payment due date. The Area Director will furnish the necessary forms and further guidance on the PAD procedure.

5. Reserve Accounts:

   Reserves must be properly budgeted to maintain the financial viability of any operation. Reserves are important to fund unanticipated emergency maintenance, pay for repairs, and assist with debt service should the need arise.

   The District will be required to deposit $2,270 per month into a "Funded Debt Reserve Account" until the account reaches $272,400. The deposits are to be resumed any time the account falls below the $272,400.

   The required monthly deposits to the Reserve Account and required Reserve Account levels are in addition to the requirements of the District's prior bond resolutions.

   The monthly deposits to the Reserve Account are required to commence with the first month of the first full fiscal year after the facility becomes operational.

   The District also needs to fund an account for short-lived assets by depositing a sum of $4,000 monthly into the account. The funds in the short-lived asset account may be used by the District as needed to replace or add short-lived assets in the District's water system. This short-lived asset reserve amount replaces any previous short-lived assets requirements previously set with any prior RUS loan.

6. Security Requirements:

A pledge of gross water revenue will be provided in the Bond Resolution. Bonds shall rank on a parity with existing bonds, if possible.

If this is not possible, the bond will be subordinate and junior to the existing bonds, in which case the District will be required to abrogate its right to issue additional bonds ranking on a parity with the existing bonds, so long as any unpaid indebtedness remains on this bond issue.

7. Land Rights and Real Property:

The District will be required to furnish satisfactory title, easements, etc., necessary to install, maintain and operate the facility to serve the intended users. The pipelines will be on private rights-of-way where feasible. Easements and options are to be secured prior to advertising for construction bids.

8. Organization:

The District will be legally organized under applicable KRS which will permit them to perform this service, borrow and repay money.

The District must maintain a current registration of their Dun and Bradstreet Data Universal Numbering System (DUNS) number in SAM.gov (System for Award Management) in order to receive federal loan and grant financial assistance. This registration must be updated/renewed at least annually.

9. Business Operations:

The District will be required to operate the system under a well-established set of resolutions, rules and regulations. A budget must be established annually and adopted by the District after review by Rural Development. At no later than loan pre-closing, the District will be required to furnish a prior approved management plan to include, as a minimum, provisions for management, maintenance, meter reading, miscellaneous services, billing, collecting, delayed payment penalties, disconnect/reconnect fees, bookkeeping, making and delivering required reports and audits.

10. Accounts, Records and Audits:

The District will be required to maintain adequate records and accounts and submit annual budgets and year-end reports (annual audits)/statistical and financial reports, quarterly and annually, in accordance with subsection 1780.47 of RUS Instruction 1780.

The District shall be required to submit a copy of its audit agreement for review and concurrence by Rural Development prior to pre-closing the loan.

11. <u>Accomplish Audits for Years in Which Federal Financial Assistance is Received</u>:

The District will accomplish audits in accordance with OMB Circular A-133, during the years in which federal funds are received. The District will provide copies of the audits to the Area Office and the appropriate Federal cognizant agency as designated by OMB Circular A-133.

12. <u>Insurance and Bonding</u>:

The following insurance and bonding will be required:

A. Adequate Liability and Property Damage Insurance including vehicular coverage, if applicable, must be obtained and maintained by the District. The District should obtain amounts of coverage as recommended by its attorney, consulting engineer and/or insurance provider.

B. Worker's Compensation - The District will carry worker's compensation insurance for employees in accordance with applicable state laws.

C. Fidelity Bond - The District will provide Fidelity Bond Coverage for all persons who have access to funds. Coverage may be provided either for all individual positions or persons, or through "blanket" coverage providing protection for all appropriate employees and/or officials. The amount of coverage required for all RUS loans is $400,000.

D. Real Property Insurance - The District will obtain and maintain adequate fire and extended coverage on all structures including major items of equipment or machinery located in the structures. The amounts of coverage should be based on recommendations obtained by the District from its attorney, consulting engineer and/or insurance provider. Subsurface lift stations do not have to be covered except for the value of electrical and pumping equipment therein.

E. Flood Insurance - The District will obtain and maintain adequate coverage on any facilities located in a special flood and mudslide prone areas.

13. <u>Planning and Performing Development</u>:

A. The engineer should not be authorized to commence work on final plans and specifications until a determination has been made that the project can be planned and constructed within the estimated cost shown in paragraph "22" of this letter. The engineer may then proceed to develop final plans and specifications to be completed no later than 180 days from this date, and prepare bid documents. The Area Director is prepared to furnish the necessary guide to follow so as to keep the project plans and documents within our guidelines and requirements. <u>The project should not be advertised for construction bids until all easements and enforceable options have been obtained, and total funds are committed or available for the project</u>.

B. The following documents will be submitted to Rural Development for review and must be concurred in by Rural Development prior to advertisement for construction bids:

1. Final plans, specifications and bid documents.
2. Applicant's letter on efforts to encourage small business and minority-owned business participation.
3. Legal Service Agreements.
4. Engineering Agreements.

Revision in these documents will be subject to Rural Development concurrence. Any agreements, contracts, etc. not reviewed and approved by Rural Development will not be eligible for payment from project funds or revenues from facilities financed by this Agency.

Prior to receipt of an authorization to advertise for construction bids, the District will obtain advance clearance from Bond Counsel regarding compliance with KRS 424 pertaining to publishing of the advertisement for construction bids in local newspapers and the period of time the notice is required to be published.

14. Civil Rights & Equal Opportunity:

You should be aware of and will be required to comply with other federal statute requirements including but not limited to:

A. Section 504 of the Rehabilitation Act of 1973:

Under Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), no handicapped individual in the United States shall, solely by reason of their handicap, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Rural Development financial assistance.

B. Civil Rights Act of 1964:

All borrowers are subject to, and facilities must be operated in accordance with, Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d et seq.) and Subpart E of Part 1901 of this Title, particularly as it relates to conducting and reporting of compliance reviews. Instruments of conveyance for loans and/or grants subject to the Act must contain the covenant required by paragraph 1901.202(e) of this Title.

C. The Americans with Disabilities Act (ADA) of 1990:

This Act (42 U.S.C. 12101 et seq.) prohibits discrimination on the basis of disability in employment, state and local government services, public transportation, public accommodations, facilities, and telecommunications. Title II of the Act applies to facilities operated by state and local public entities that provide services, programs, and activities. Title III of the Act applies to facilities owned, leased, or operated by private entities that accommodate the public.

D. Age Discrimination Act of 1975:

This Act (42 U.S.C. 6101 et seq.) provides that no person in the United States shall, on the basis of age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.

Rural Development financial programs must be extended without regard to race, color, religion, sex, national origin, marital status, age, or physical or mental handicap.

15. Closing Instructions:

The Office of General Counsel, our Regional Attorney, will be required to write closing instructions in connection with this loan. Conditions listed therein must be met by the District.

16. Compliance with Special Laws and Regulations:

The District will be required to conform to any and all state and local laws and regulations affecting this type project.

17. Treatment Plant and System Operator:

The District is reminded that the treatment plant and system operator must have an Operator's Certificate issued by the State.

18. Prior to Pre-Closing the Loan, the District Will Be Required to Adopt:

A. Form RUS Bulletin 1780-27, "Loan Resolution (Public Bodies)."

B. Form RD 400-1, "Equal Opportunity Agreement."

C. Form RD 400-4, "Assurance Agreement."

D. Form AD-1047, "Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transaction."

E. Form RD 1910-11, "Applicant Certification Federal Collection Policies for Consumer or Commercial Debts."

F. RD Instruction 1940-Q, Exhibit A-1, "Certification for Contracts, Grants and Loans."

G. RUS Bulletin 1780-22, "Eligibility Certification."

19. Refinancing and Graduation Requirements:

The District is reminded that if at any time it shall appear to the Government that the District is able to refinance the amount of the RUS indebtedness then outstanding, in whole or in part, by obtaining a loan from commercial sources at reasonable rates and terms, upon the request of the Government, the District will apply for and accept such loan in sufficient amount to repay the Government.

20. Commercial Interim Financing:

The District will be required to use commercial interim financing for the project during construction for the RUS loan portion of the financing, if available at reasonable rates and terms.

Before the loan is closed, the District will be required to provide Rural Development with statements from the contractor, engineer and attorneys that they have been paid to date in accordance with their contract or other agreements and, in the case of the contractor, that he has paid his suppliers and sub-contractors.

21. Disbursement of Project Funds:

A construction account for the purpose of disbursement of project funds (RUS) will be established by the District prior to start of construction. The position of officials entrusted with the receipt and disbursement of RUS project funds will be covered by a "Fidelity Bond," with USDA Rural Development as Co-Obligee, in the amount of construction funds on hand at any one time during the construction phase.

For each "construction account" as established, if the amount of RUS loan and grant funds plus any applicant contributions or funds from other sources to be deposited into the account are expected to exceed $250,000 at any time, the financial institution will secure the amount in excess of $250,000 by pledging collateral with the Federal Reserve Bank in an amount not less than the excess in accordance with 7 CFR, 1902.7(a).

During construction, the District shall disburse project funds in a manner consistent with subsection 1780.76 (e) of RUS Instruction 1780. Form RD 1924-18, "Partial Payment Estimate," or similar form approved by Rural Development, shall be used for the purpose of documenting periodic construction estimates, and shall be submitted to Rural Development for review and acceptance. Prior to disbursement of funds by the District, the Board of Directors shall review and approve each payment estimate. All bills and vouchers must be approved by Rural Development prior to payment by the District.

Form RD 440-11, "Estimate of Funds Needed for 30-Day Period Commencing ________," will be prepared by the District and submitted to Rural Development in order that a periodic advance of federal cash may be requested.

Borrowers receiving federal loan and/or grant funds by EFT will have funds directly deposited to a specified account at a financial institution with funds being available to the recipient on the date of payment. The borrower should complete Form SF-3881, "Electronic Funds Transfer Payment Enrollment Form," for each account where funds will be electronically received. The completed form(s) must be received by Rural Development at least thirty (30) days prior to the first advance of funds.

Monthly audits of the District's construction account records shall be made by Rural Development.

22. Cost of Facility:

Breakdown of Costs:

Development		$ 11,989,000
Land and Rights		50,000
Legal		60,000
Engineering		1,202,000
Interest		250,000
Environmental		100,000
Administrative		49,000
Contingencies		1,300,000
	TOTAL	$ 15,000,000

Financing:

RUS Loan		$ 5,000,000
BRAC Grant		5,000,000
KIA Grant		500,000
Applicant Contribution		4,500,000
	TOTAL	$ 15,000,000

23. Commitment of Other Project Funds:

This Letter of Conditions is issued contingent upon a firm commitment being in effect prior to advertising for construction bids for the BRAC grant in the amount of $5,000,000; for the KIA grant in the amount of $500,000; and the availability of the applicant contribution in the amount of $4,500,000.

24. Use of Remaining Project Funds:

The applicant contribution shall be considered as the first funds expended. After providing for all authorized costs, any remaining project funds will be considered to be BRAC/KIA grant funds and refunded in proportion to participation in the project. If the amount of unused project funds exceeds the grants, that part would be RUS loan funds.

25. Proposed Operating Budget:

You will be required to submit to Rural Development a copy of your proposed annual operating budget that supports the proposed loan repayment prior to this agency giving you written authorization to proceed with the bidding phase. The operating budget should be based on a typical year cash flow, subject to completion of this project in the first full year of operation. Form RD 442-7, "Operating Budget," or similar form may be utilized for this purpose.

26. Rates and Charges:

Rates and charges for facilities and services rendered by the District must be at least adequate to meet cost of maintaining, repairing and operating the water system and meeting required principal and interest payments and the required deposits to debt service and/or depreciation reserve.

Water rates will be at least:

5/8" x ¾" Meter:

First	2,000	gallons @ $	18.50. - Minimum Bill.
Next	498,000	gallons @ $	5.15. - per 1,000 gallons.
All Over	500,000	gallons @ $	2.90. - per 1,000 gallons.

1" Meter:

First	5,000	gallons @ $	33.95. - Minimum Bill.
Next	495,000	gallons @ $	5.15. - per 1,000 gallons.
All Over	500,000	gallons @ $	2.90. - per 1,000 gallons.

1 ½" Meter:

First	10,000	gallons @ $	59.70. - Minimum Bill.
Next	490,000	gallons @ $	5.15. - per 1,000 gallons.
All Over	500,000	gallons @ $	2.90. - per 1,000 gallons.

2 " Meter:

First	20,000	gallons @ $	111.20. - Minimum Bill.
Next	480,000	gallons @ $	5.15. - per 1,000 gallons.
All Over	500,000	gallons @ $	2.90. - per 1,000 gallons.

3" Meter:

First	30,000	gallons @ $	162.70. - Minimum Bill.
Next	470,000	gallons @ $	5.15. - per 1,000 gallons.
All Over	500,000	gallons @ $	2.90. - per 1,000 gallons.

4" Meter:

First	50,000	gallons @ $	265.70. - Minimum Bill.
Next	450,000	gallons @ $	5.15. - per 1,000 gallons.
All Over	500,000	gallons @ $	2.90. - per 1,000 gallons.

6"Meter

First	100,000	gallons @ $	523.20. - Minimum Bill.
Next	400,000	gallons @ $	5.15. - per 1,000 gallons.
All Over	500,000	gallons @ $	2.90. - per 1,000 gallons.

8" Meter

First	150,000	gallons @ $	780.70. - Minimum Bill.
Next	350,000	gallons @ $	5.15. - per 1,000 gallons.
All Over	500,000	gallons @ $	2.90. - per 1,000 gallons.

10" Meter:

First	250,000	gallons @ $ 1,295.70.	- Minimum Bill.
Next	250,000	gallons @ $ 5.15.	- per 1,000 gallons.
All Over	500,000	gallons @ $ 2.90.	- per 1,000 gallons.

12" Meter:

First	400,000	gallons @ $ 2,068.20.	- Minimum Bill.
Next	100,000	gallons @ $ 5.15.	- per 1,000 gallons.
All Over	500,000	gallons @ $ 2.90.	- per 1,000 gallons.

27. Water Purchase Contract:

The District will submit a Water Purchase Contract for approval by Rural Development before advertising for construction bids. If the contract is not on Form RD 442-30, "Water Purchase Contract," the contract will require approval by our Regional Attorney. The contract must meet the requirements of subsection 1780.62 of RUS Instruction 1780.

28. Compliance with the Bioterrorism Act:

Prior to pre-closing the loan, the District will provide a certification they have completed a Vulnerability Assessment (VA) and prepared an emergency response plan (ERP) as required by the Safe Drinking Water Act (SDWA).

29. Floodplain Construction:

The District will be required to pass and adopt a Resolution or amend its By-Laws whereby the District will deny any water service to any future customer wishing to build on or develop property located within a designated floodplain. If a customer or developer requests service for construction in a designated floodplain, the customer or developer must provide evidence and a justification for approval by the District and Rural Development officials that there are no other alternatives to construction or development within the designated floodplain. The community must be a participant in the National Flood Insurance Program (NFIP) and the customer or developer must obtain the required permits prior to the tap on restrictions being waived.

30. Mitigation Measures:

A. The project shall be in compliance with all requirements noted in the Governor's Office for Local Development letter dated October 4, 2013, from Ms. Lee Nalley.

B. The line design and construction shall be accomplished in a way that will leave flood plains and farmland without effect after construction is complete. The Army Corps of Engineers Nationwide Permit No. 12 applies to all floodplain and wetland utility line construction.

C. Any excavation by Contractor that uncovers a historical or archaeological artifact shall be immediately reported to Owner and a representative of

Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the State Historic Preservation Officer (SHPO).

D. The design and construction shall be in compliance with all local, state and federal environmental statutes, regulations and executive orders applicable to the project.

E. Best Management Practices shall be incorporated into the project design, construction, and maintenance.

31. Final Approval Conditions:

Final approval of this assistance will depend on your willingness, with the assistance of all your co-workers, to meet the conditions of this letter in an orderly and systematic manner. Then too, final approval will depend on funds being available.

If you desire to proceed with your application, the Area Director will allot a reasonable portion of time to provide guidance in application processing.

Sincerely,

Thomas Fern

THOMAS G. FERN
State Director

Enclosures

cc: Area Director - Columbia, Kentucky
Area Manager – Elizabethtown, Kentucky
Lincoln Trail ADD - Elizabethtown, Kentucky
Stoll Keenon Ogden - Louisville, Kentucky
Kenvirons Engineering - Frankfort, Kentucky
Damon Talley - Hodgenville, Kentucky
PSC - ATTN: Jeff Derouen - Frankfort, Kentucky

EXHIBIT 2

Preliminary

Engineering

Report

KENVIRONS

PRELIMINARY ENGINEERING REPORT

Hardin County Water District No. 2

Elizabethtown, Kentucky

SUPPLEMENTAL WATER SUPPLY

Prepared by:

KENVIRONS, INC.
452 VERSAILLES ROAD
FRANKFORT, KY 40601

STATE OF KENTUCKY
CARLOS F. MILLER
7364
LICENSED
PROFESSIONAL ENGINEER

12-20-13

PROJECT NO. 2012173

MAY 2013

Kenvirons, Inc.

Civil & Environmental Engineering and Laboratory Services

TABLE OF CONTENTS

1.0 INTRODUCTION

The Hardin County Water District No. 2 (HCWD2) provides water service to over 17,000 customers in generally the southern two-thirds of Hardin County circumscribing the City of Elizabethtown. Hardin County Water District No. 1 (HCWD1) essentially serves the City of Radcliff with a relatively small number of customers in the County. Other water utilities located in the County are Elizabethtown Municipal Water Works, Fort Knox Water Department, Vine Grove Water Works and West Point Water Works.

HCWD2 is the primary utility in the County that is dedicated to providing water service to residences and businesses outside the confines of corporate limits. The dominant source of private water supply in the County is groundwater, i.e., springs and wells. HCWD2 produces all of its water at the White Mills Treatment Facility and the raw water supply is the Nolin River. The water treatment plant (WTP) had an original capacity of 2.7 million gallons per day (MGD) and was expanded in 2000 to 8.1 MGD. Prior to the WTP expansion, HCWD2 purchased water from HCWD1, but these wholesale purchases are no longer available.

HCWD2 currently sells water to the City of Elizabethtown. The water purchase agreement executed with the City allows an average of 1.1 MGD and up to 1.5 MGD to augment the City's dwindling supply capacity.

2.0 GEOGRAPHIC LOCATION

Hardin County is in the Lincoln Trail Area Development District and touches the Ohio River at its northernmost point. Below is a map of Kentucky with the boundary of Hardin County highlighted.

3.0 PROJECT NEED

The primary source of water, for those residents in Hardin County without a public water supply, is groundwater, i.e., wells, springs and cisterns. The karst topography and fractured rock conditions throughout the County subject the underground regime to the influence of surface water and all of the associated contaminants. The groundwaters of the County are not suitable for human consumption without appropriate treatment.

There are approximately 100 miles of roads and 800 existing households in the HCWD2 service area that do not have a reliable potable water supply. The County Health Department has documented that the private water sources are inadequate, contaminated and unfit for human consumption. During the drought of 1999, most of these private water sources dried up.

The extension of water service into the existing unserved areas will eliminate the extreme health hazard to which these residents are exposed.

As previously stated, HCWD2 is the primary utility in the County that has been committed to providing water service to all areas within and beyond its service area. It is the intent of HCWD2 to continue to address this need and develop a plan to implement the state initiative to provide the availability of potable water to every household in Kentucky by the year 2020. This objective in the HCWD2 service area is being accomplished in phases, and Phase 4 was recently completed in 2008.

The current treated water supply for HCWD2 is the White Mills Treatment Facility located approximately fifteen miles south of Elizabethtown. The raw water supply is the Nolin River. The River is one of the most reliable water sources in the state due to its significant ground water inflow component. The maximum withdrawal from the river allowed by the Kentucky Division of Water at the White Mills location is 9.0 MGD, and the current treatment capacity of the White Mills facility is 8.1 MGD. The water produced during 2008 was 1,967,051,569 gallons for an average of 5.4 MGD. Further, the maximum day production during 2008 was 8.0 MGD, and there were several days with a production level of 7.2 MGD. This data is consistent with the general criteria for the maximum day estimate of 1.5 times the average day where 1.5 x 5.4 MGD equals 8.1 MGD. Therefore, the urgency for the development of additional water source is obvious.

The customer count ending in 2008 was 16,066. Exhibit 1 contains a tabulation of forty years of historical data for customer count, water sold and water produced/purchased. Exhibit 2 is a graphical representation of the customer count data and projection. Extrapolation of the historical data indicates a customer count estimate of 29,000 in year 2029 and 36,000 in 2039. A similar representation and projection for water produced/purchased is shown in Exhibit 3 and indicates a production/purchased quantity estimate of 11.8 MGD in 2029 and 15.6 in 2039. Exhibit 4 contains a comparison of future demands based on customer count and gallons produced/purchased data. An average day demand in 2029 of 10 MGD indicates a maximum day demand of approximately 15 MGD. If one treatment train at the White Mills facility is out of operation, approximately 10 MGD will be needed from a supplemental supply.

4.0 ALTERNATIVE WATER SOURCES

A study of water supply alternatives (Hardin County Regional Water Feasibility Study) was done in 2001 for the Hardin County Regional Water Group. This study essentially evaluated all of the water supply alternatives for the projected demands of the County and is included herein by reference. The alternative sources for additional water are as follows:

1. **NOLIN RIVER / NOLIN LAKE**
   The only viable water sources that are available to provide a raw water source to the existing White Mills site are located on the Nolin River at or below Roundstone Creek or Nolin Lake. The nearest location is at the confluence of Nolin River and Roundstone Creek which is about 25 river miles downstream from the existing intake at White Mills. Approximately 15 miles of raw or treated water pipeline would be required. In order to utilize Nolin Lake, an intake in the lake would need to be below the winter pool elevation of 490 feet MSL. This alternative would require at least 20 miles of transmission main to the White Mills site. A new treatment facility would be needed either at the downstream site or on the White Mills property. The opinion of probable cost is over $95 million for the Roundstone Creek location (See Exhibit 7). The opinion of probable cost increase to go on to Nolin Lake is $9 million (See Exhibit 7-A).

   Either alternative would require finished water transmission main reinforcement to deliver water to the northern portion of the system which would significantly increase the cost.

2. **LOUISVILLE WATER COMPANY**
   The Louisville Water Company (LWC) is in the process of extending its pipeline system south along the I-65 corridor. LWC has indicated that the existing pipeline system, along with current construction projects, could deliver 2.0 to 3.0 MGD to the Hardin County line south of Lebanon Junction by the Summer of 2015 and up to 5.0 MGD by January 2021. LWC has indicated that the 10 MGD demand projected by HCWD2 in 2029 can be available at that time. A flow of 10 MGD (7,000 GPM) will require a 24-inch pipeline.

   The disinfectant utilized in the process at the White Mills facility and the distribution system is chlorine. The disinfectant in the LWC water supply is chloramines. The blending of chloraminated and chlorinated waters has been done, but is not recommended and is not allowed by KDOW.

The alternative solutions for this issue are (1) segregate the LWC treated water from the HCWD2 treated water through system valving; (2) change the chloraminated water supply to free chlorine to match the HCWD2 water and; (3) change the White Mills treatment process to chloramines for the disinfectant to match the LWC water. Advantages and disadvantages of the alternatives are as follows:

Alternative 2.1 - Segregate the LWC Water from the HCWD2 Water.

This alternative requires closing the appropriate system valves to maintain separation of the two supply waters. For example, the southern portion of the system could be supplied from White Mills with the northern portion of the system supplied from LWC. The District's system, in its existing configuration, would dictate that the LWC water would be pumped into Pear Orchard Tank and transmitted around the eastern side of Elizabethtown. White Mills WTP would pump into the Cecilia Tank and the Cecilia Pump Station would pump to the Rineyville Tank. The service area of the Pear Orchard Tank would be determined by the agreed minimum purchased quantity. However, the area previously serviced by the 31W pump station would need to be supplied from the Pear Orchard 1040 pressure zone. After the new Springfield Road Tank (1.0 MG with O/F 1040) is in service, LWC water could be pumped to this tank and distributed to US 31W south and the system could be segregated east and west rather than north and south.

The City of Elizabethtown (E-town) is a major water customer purchasing approximately 1.1 MGD. E-town is also a free chlorine system. Their master meters are located;

1. Near the Pear Orchard Tank at the northern apex of the 24" transmission facility
2. At Buffalo Creek Drive near the I-65/KY 62 interchange (Exit 94)
3. On Locust Grove Road at Hwy 210
4. Near the HCWD2 Office at 360 Ring Road

The approximate locations of the master meters are shown on the County map included herein. Since E-town's purchase points are located north, east and west around the City, it is not possible to segregate the water for all locations. E-town would need to convert the chloraminated water to chlorinated for at least one and probably two locations.

The cost for the water district would be minimal since the segregation could be accomplished by closing select valves. E-town would need to install breakpoint chlorination facilities to affect the change over from chloraminated to chlorinated water.

Alternative 2.2 - Convert HCWD2 to Chloramines.

Hardin County is one of the larger counties in the Commonwealth. There are over 800 miles of pipelines in the HCWD2 system. The maintenance of a chlorine residual in the long distances of pipeline and remote tanks has become a perpetual problem. The formation of disinfection by-products (DBP's) such as THMs and other DBPs in the presence of chlorine is an inherent characteristic of a free chlorine residual system. The AWWA Manual M20, Water Chlorination/ Chloramination Practices and Principals, communicates that;

"Chloramines may be used as a primary or secondary disinfectant. The major benefits include residual persistence to reach to the end of many distribution systems, effectiveness as a secondary disinfectant and the ability to penetrate biofilms in distribution systems, a tendency not to form THMs and other DBPs, and a minimization of chlorinous tastes and odors. Many utilities have turned to chloramines as the secondary distribution system residual disinfectant primarily to reduce the formation of DBPs. This application has proved effective."

"There are, however, some important problems that may result from the use of chloramines. Operators must be aware of these potential consequences and institute procedures to minimize the impact. The major chloramination issues include the potential effects on special water uses such as kidney dialysis and fish rearing, possible effects on elastomeric materials used in distribution systems and plumbing fixtures, and vulnerability to the microbiological process known as nitrification.
Special water users should be notified that chloramines are being used and that their equipment or procedures should be modified to remove this chemical. Deterioration of elastomers by chloramines is enhanced by higher water temperatures. Operators in climates where high water temperatures are encountered should consider this potential issue when selecting the most suitable disinfectant."

Nitrification is a process whereby ammonia is sequentially oxidized to nitrite and nitrate. Most systems control this nitrification process by controlling the chlorine: ammonia-nitrogen ratio; maintaining a good chloramine residual in the system; maintaining pH and temperature; and limiting the excess free ammonia.

The Louisville Water Company and Kentucky American Water Company in Lexington are chloramination systems. Both of these companies indicated that the above mentioned issues have been handled through monitoring and diligent operational procedures.

If the HCWD2 treatment process would convert to a chloramine system, E-town would need to convert their system to chloramine or convert the chloramines to chlorine residuals. Due to the expansive nature of the HCWD2 system, and the difficulty maintaining a free chlorine residual, changing the secondary disinfectant to chloramine would be advantageous regardless of the LWC issue.

Alternative 2.3 - Convert LWC Chloraminated Water to Chlorine.

The conversion of chloraminated water to chlorinated water is a relatively simple operation. Chlorine is added to the chloraminated water at the metering location. The amount of chlorine added is sufficient to surpass the breakpoint and achieve a chlorine residual. The M20 manual again succinctly describes the breakpoint reaction as follows:

> *The breakpoint is described as the point at which chlorine demand has been satisfied, combined chlorine compounds have been destroyed, and as additional chlorine is added, a free chlorine residual is produced.*

The booster pump station would need to contain controlled chlorine feed equipment and constant monitoring equipment to achieve the conversion. The opinion of probable additional cost above the cost for only the booster pump station is $150,000.

The advantage with converting LWC water is that it would be the same as the water produced by HCWD2 and no further action would be required at the White Mills WTP or by E-town. However, a major disadvantage is that recent testing of the LWC water indicated that the THM formations tripled and the HAA formations doubled after breakpoint chlorination. The higher disinfection by-product (DBP) concentrations could jeopardize the District's Stage 2 compliance.

3. **TAKE NO ACTION**

This is not a realistic option. HCWD2 must develop an additional source of water to satisfy its projected growth. Further, if water purchases were made from LWC, KDOW will not allow the permanent blending of chlorinated and chloraminated waters.

4. **PREFERRED ALTERNATIVE**

HCWD2 and HCWD1 are both considering the option to purchase treated water from LWC. It was determined that a coordinated study of the waters of the three (3) utilities would be beneficial for all involved parties.

LWC, in concert with HCWD2 and Kenvirons and HCWD1 and HDR, performed a Disinfection By-Product (DBP) Formation Assessment Study to evaluate the suitability of the available alternatives. The waters of HCWD2 and HCWD1 were investigated separately which included conclusions and recommendations for each utility. The objectives of the study were to:

1. Compare existing DBP levels in the LWC and HCWD2 waters.
2. Determine the DBP formation in the breakpoint chlorinated LWC water.
3. Determine the DBP formation in the chloraminated HCWD2 water.

The study concluded that the LWC water had an inherently high DBP formation potential and using breakpoint chlorination to establish a free chlorine residual would produce a water that would exceed the Stage 2 limits for several months of the year. Therefore, HCWD2 would be limited in the volume and seasonal timing of water purchased from LWC. The breakpoint chlorination option would not satisfy the long term water supply need of HCWD2.

The study demonstrated that changing the secondary disinfectant of HCWD2 to chloramine would reduce the DBP formation potential of the water produced from the White Mills WTP.

The DBP Formation Assessment Study concluded and recommended that HCWD2 convert to chloramines for distribution system disinfectant to accommodate the importation of the LWC chloraminated water. A copy of the DBP Formation Assessment Study is included in Appendix 1. An additional recommendation was to perform a blending study to investigate the proper chloramination conditions for HCWD2 and to evaluate potential water quality impacts such as taste and odor, scaling, corrosion, discolored water, nitrification potential and nitrogenous DBP. The Blending Study is contained in Appendix 2.

5.0 EXISTING FACILITIES

Hardin County Water District No. 2 began operations in July, 1969. The existing facilities consist of over 800 miles of A.C., PVC and D.I. pipe in sizes 3-inch through 24-inch; eight storage tanks with total usable storage capacity of 4.3 million gallons; five booster pump stations; 8.1 MGD water treatment plant with 1.5 million gallon clearwell; fire hydrants and other appurtenances. The water treatment facility began operations in October, 1990. The treatment facility was initially rated at 2.0 MGD but subsequently revised to 2.7 MGD due to a performance evaluation. In 2000, the WTP was expanded to its present 8.1 MGD capacity.

The WTP utilizes three (3) helical upflow clarifiers (Claricones) and six (6) dual media filters to treat the water withdrawn from White Mills Spring. The spring discharges into Nolin River and its base flow is essentially an underground diversion of Nolin River. The Raw Water Intake is located across Cave Road approximately 140 feet from the entrance to the WTP. The coordinates of the Raw Water Intake are N37°33'44.06", W86°02'10.63"W. Drawing No. 1 contained at the end of this report show the location of the WTP and Intake.

HCWD2 is physically and economically sound.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The projected average future demand for the HCWD2 service area in 2029 is 10 MGD with a peak day of 15 MGD. Assuming conservatively that one (1) treatment train at the White Mills Treatment Plant is out of service, the additional water supply needed to meet the future demand is approximately 5 MGD on the average day and 10 MGD on the peak day (See Exhibits 2 thru 5).

The Nolin River at Roundstone Creek could yield 10 MGD, however, approximately 8% of the time the 7Q10 criteria would prohibit withdrawals from the river. The estimated cost to develop this source is approximately $53 million for 4 MGD and $95 million for 10 MGD (See Exhibit 7). Nolin Lake would be an unlimited supply, but the cost to utilize the reservoir as a raw water source would exceed $104 million for 10 MGD (See Exhibit 7-A).

Louisville Water Company has approximately 100 MGD available treatment capacity and an unlimited source in the Ohio River. The current quoted wholesale price is $2.05 per thousand. A LWC connection at or near the Bullitt / Hardin County line between Colesburg and Lebanon Junction and a 24-inch transmission main and pump station would cost approximately $15,000,000 (See Exhibit 9). The LWC connection facilities cost is significantly less than the other alternatives. Based on a 3% inflation rate, the cost per thousand gallons is not only less but much less complicated relative to logistics and daily operational requirements.

It is the recommendation of this report to implement the connection to LWC for a treated purchase water supply.

Based on the conclusion to purchase the required additional water supply from LWC, the issue of the different disinfection processes must be considered. The fact that there is existing difficulty maintaining a chlorine residual in the HCWD2 system indicates the possibility of attacking two problems with one action, namely conversion of the distribution system disinfection process from chlorine to chloramines. As previously discussed, conversion from chlorine to chloramines would enhance the disinfectant residual persistence and discourage the formation of DBP's. This action would warrant serious consideration regardless of water purchases from LWC. Converting to chloramines would, however, force the City of E-town to address the operational issues with different disinfectants.

It is the recommendation of this report to convert the HCWD2's distribution system disinfectant process to chloramines. The HCWD2 board has accepted this recommendation to convert the White Mills water treatment facility to chloramines for the secondary disinfectant process and has already taken steps to implement the conversion.

7.0 PROPOSED FACILITIES

It is proposed in this project to install a 24-inch D.I. transmission pipeline from a connection to HCWD2's existing 24-inch pipeline near Elizabethtown at Hwy 251 and extend approximately 8 miles to a connection to the LWC system at or near the Hardin/ Bullitt County line on the south side of Rolling Fork River. A pump station will be required to pump from LWC's 690 hydraulic gradient to the HCWD2's 1040 pressure zone. The HCWD2's pump station will be located above the 100 year flood plain which, according to the FEMA flood maps, is elevation 452 MSL. The project maps show the proposed transmission facilities. An itemized cost estimate is contained in Exhibit 6. The opinion of probable project cost estimate is contained in Exhibit 9.

8.0 LAND, RIGHTS AND OTHER PERMITS

8.1 Land & Rights

Land acquisition will be required for a pump station. Easements for pipe-line construction will be necessary.

8.2 Permits

Permits and approvals will be required form the Kentucky Division of Water and Public Service Commission. The normal county road and state highway encroachment permits will be required. Depending on the pipeline route, a railroad crossing permit is not required.

9.0 WATER DISTRIBUTION SYSTEM OPERATION

Detailed hydraulics of the system have been analyzed with the computer model, KYPIPE. Initially, the East View Tank was the control for the high service pumps at the WTP. The southern half of the system was serviced from this facility with a production of 1.2 to 1.5 MGD. The remaining water was purchased from HCWD1. During the period of 1990 to 2000 the District has installed major capital improvements including 25 miles of 24-inch transmission main, three (3) one million gallon storage tanks, two (2) 500,000 gallon elevated tanks and a 6 MGD pump station. The District provides all of its treated water from the White Mills Treatment Facility.

The Pear Orchard and Cecilia Storage Tanks became operative along with a *new 4 MGD pump station in January, 1995, and the control of the treatment* plant high service pumps was changed to the Cecilia Tank. The Cecilia Pump Station was upgraded to 6 MGD in 2000.

The operation of the system involves pumping from the White Mills facility via the high service pumps through the 24-inch main to the one million gallon elevated tank on U.S. 62 northeast of Cecilia. This tank is the fluted column type with the 6 MGD pump station located under the tank bowl. This pump station pumps approximately eight miles into the two 1 million gallon elevated tanks at Pear Orchard and Rineyville Road. The pumping operation is controlled with the existing computer based telemetry system.

The East View Tank initially was filled with an underground pump station located on U.S. 62 near Cecilia and relocated to White Mills on the water plant property. This pump station was rendered obsolete with the water plant expansion. The old high service pumps are now used to fill the East View Tank. The underground pump station was relocated from the treatment plant to Hart County to fill the 100,000 gallon elevated tank that was constructed in the Phase 2 Extension Project.

The HCWD2 / LWC water purchase agreement stipulates a maximum and minimum hydraulic grade line elevation of 690 and 650 respectively. The proposed pump station will be located at approximate elevation 460 and will pump into and be controlled by the Pear Orchard Tank. The White Mills high service pumps will continue to be controlled by the Cecilia Tank. The Cecilia Tank Pump Station would be controlled by the Rineyville Road Tank.

A one million gallon composite tank near Springfield Road is presently under construction. Construction is scheduled to begin on a pump station located on Hwy 1136 north from Glendale on the 24-inch pipeline to pump into the Springfield Road Tank.

10.0 WATER TREATMENT PLANT OPERATION

The White Mills Treatment Facility is manned and, preferably, operated 24 hours per day. The operators adjust the process flowrate throughout the day to match the demands of the water distribution system. During 2012, the plant produced a total of 1,949,027,000 gallons which equates to an average production of 5.33 MGD, or 66% of the plant's rated capacity. The table below lists the certified water treatment operators employed by HCWD2:

Operator	Certification Number	Class
Shaun Youravich	1409	IVA
Stuart Erhardt	931	IVA
Dwayne Barnes	1357	IVA
Chris Phillips	13602	IVA
Dave Klinglesmith	442	IVA
Adran Stinson	15457	IVA
Brian Fox	18422	IVA
Mahmoud Mohamed	17968	IVA
Michael Hale	21975	III-A

11.0 PROJECT FUNDING

Hardin County is no longer eligible for Rural Development grants. The opinion of probable project cost for the LWC connection is shown in Exhibit 9 to be $15,000,000. The project funding is anticipated to consist of an RD loan, a BRAC grant and a KIA grant as shown in Exhibit 9.

EXHIBIT 1
Hardin County Water District No. 2
Historical Information

Year	Total Cust.	Water Sold-Retail	Water Sold-Resale	Total Water Sold	Water Purchased	Water Produced	Total Water Pur./Prod.
1969	700	24,485,771		24,485,771	60,500,000		60,500,000
1970	1,338	114,616,400		114,616,400	136,207,100		136,207,100
1971	1,572	131,371,200		131,371,200	161,372,600		161,372,600
1972	2,159	130,870,300		130,870,300	174,283,300		174,283,300
1973	2,597	155,077,800		155,077,800	214,660,300		214,660,300
1974	3,078	195,128,700		195,128,700	238,022,000		238,022,000
1975	3,058	230,196,800		230,196,800	269,795,500		269,795,500
1976	3,431	226,977,900		226,977,900	262,288,800		262,288,800
1977	3,760	312,337,600		312,337,600	357,730,800		357,730,800
1978	4,302	257,275,500		257,275,500	299,838,900		299,838,900
1979	4,473	346,575,000		346,575,000	443,076,000		443,076,000
1980	4,646	384,462,400		384,462,400	453,797,700		453,797,700
1981	4,886	398,722,900		398,722,900	463,750,600		463,750,600
1982	5,144	421,114,300		421,114,300	485,449,100		485,449,100
1983	5,378	453,103,000		453,103,000	530,785,300		530,785,300
1984	5,567	479,837,800		479,837,800	565,110,700		565,110,700
1985	5,976	483,959,200		483,959,200	619,119,400		619,119,400
1986	6,104	509,561,800		509,561,800	686,700,200		686,700,200
1987	6,689	524,780,500		524,780,500	599,761,300		599,761,300
1988	6,839	521,257,300		521,257,300	603,575,656		603,575,656
1989	7,270	524,385,400		524,385,400	599,729,024		599,729,024
1990	8,122	560,470,700		560,470,700	619,123,090	46,015,500	665,138,590
1991	7,894	593,866,000		593,866,000	478,419,000	198,433,000	676,852,000
1992	8,460	578,905,000		578,905,000	376,018,115	316,246,662	692,264,777
1993	8,711	598,358,105		598,358,105	337,418,570	438,617,400	776,035,970
1994	9,149	609,614,900		609,614,900	232,644,000	554,077,100	786,721,100
1995	9,413	646,030,600		646,030,600	237,896,000	632,698,200	870,594,200
1996	9,677	670,863,424		670,863,424	168,219,000	691,903,870	860,122,870
1997	10,154	667,988,699		667,988,699	141,958,000	680,024,900	821,982,900
1998	10,668	790,631,000		790,631,000	151,926,000	805,584,000	957,510,000
1999	11,580	826,088,600	334,437,400	1,160,526,000	297,344,000	972,396,000	1,269,740,000
2000	12,036	753,011,700	287,819,000	1,040,830,700	82,851,000	1,099,713,000	1,182,564,000
2001	12,506	766,368,000	447,918,400	1,214,286,400		1,374,216,000	1,374,216,000
2002	12,554	770,169,003	547,748,100	1,317,917,103		1,589,228,000	1,589,228,000
2003	13,110	559,271,000	547,354,000	1,106,625,000		1,620,583,600	1,620,583,600
2004	14,024	841,678,620	551,123,800	1,392,802,420		1,716,314,600	1,716,314,600
2005	14,635	949,192,708	547,166,400	1,496,359,108		1,770,754,400	1,770,754,400
2006	15,327	942,886,906	502,763,300	1,445,650,206		1,754,276,500	1,754,276,500
2007	15,756	1,207,304,997	381,884,700	1,589,189,697		1,830,125,585	1,830,125,585
2008	16,066	1,115,210,143	405,110,700	1,520,320,843		1,967,051,569	1,967,051,569

EXHIBIT 2

Hardin County Water District No. 2

Customer History and Projection

polynomial projection

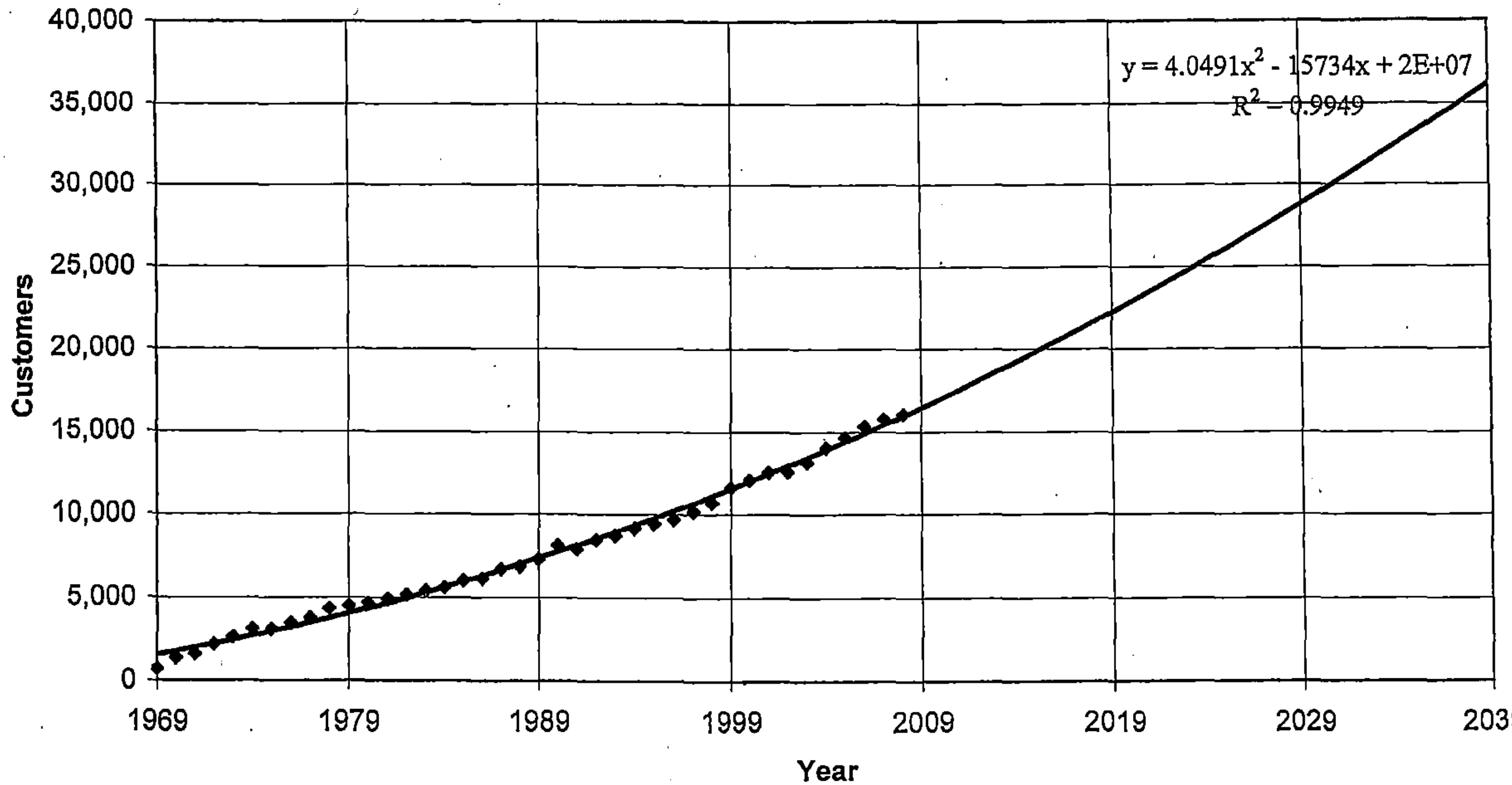


EXHIBIT 3

Hardin County Water District No. 2

Water Purchased/Produced

polynomial projection

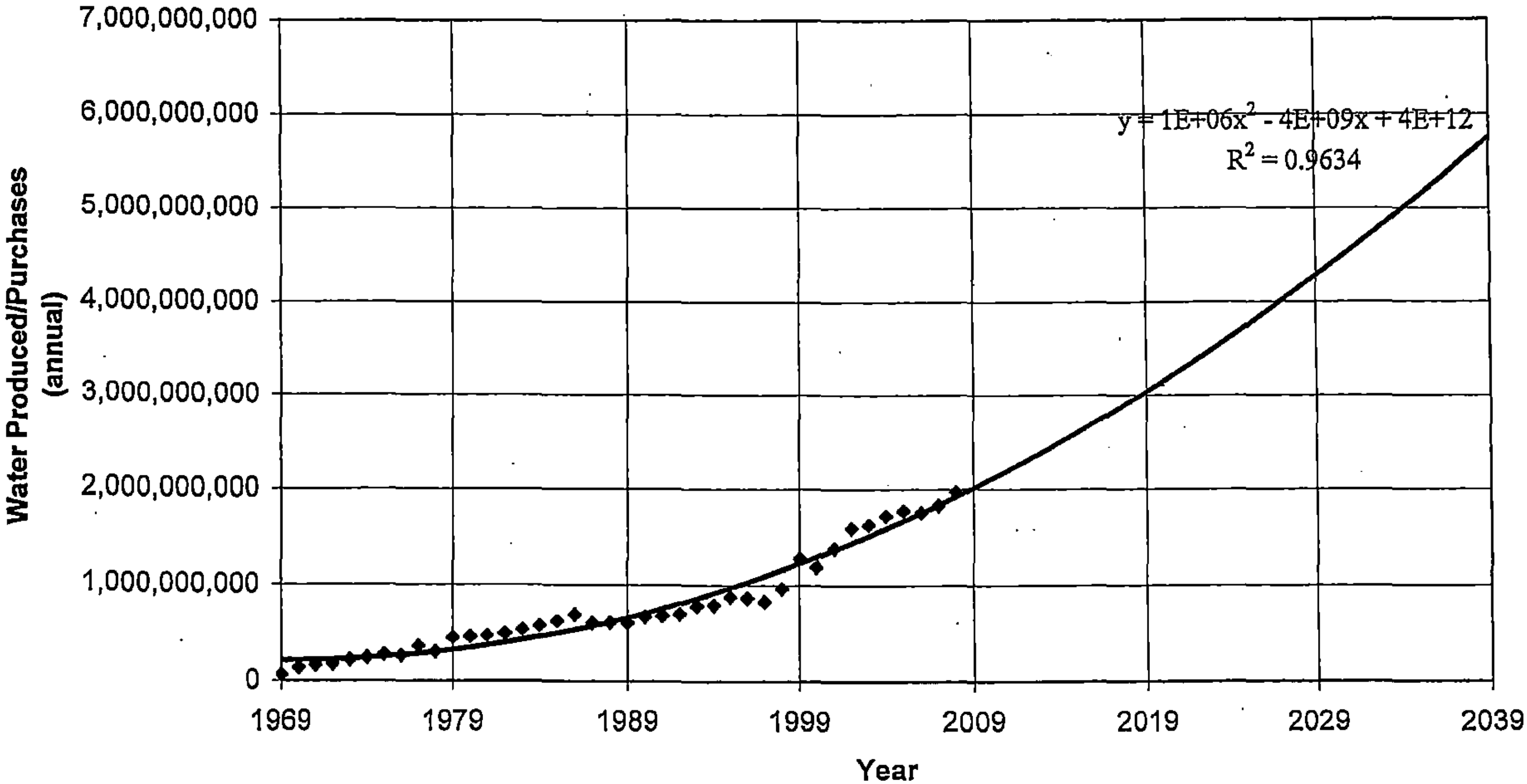


EXHIBIT 4

HARDIN COUNTY WATER DISTRICT NO. 2
CALCULATION OF AVERAGE PROJECTION FOR 2029

Historical Production for 2008

Annual Water Produced during 2008	1,967,051,569	gallons
Annual Water Sold during 2008	1,520,320,843	gallons

$$\text{Water Production Multiplier} = \frac{1,967,051,569}{1,520,320,843} = 1.2938$$

Total Water Production	1,967,051,569	gallons
Less E'town Production: 1,110,000 GPD x 365 x 1.2938	(-)524,183,070	gallons
Water Production for General Customers	1,442,868,499	gallons per year

Average Production per Customer

1,442,868,499 ÷ 16,066 ÷ 12 months = 7,484 gallons per month

Projected Production by Customer Count for 2029

29,000 customers (Exhibit 2) x 7,484 x 12	2,604,432,000	gallons
E'town: 1,500,000 GPD x 365 x 1.2938	708,355,500	gallons
Total Annual Gallons Produced	3,312,787,500	gallons
	9.1	MGD

Average of Projections for 2029

Projection by Gallons Produced (Exhibit 3)	11.8	MGD
Projection by Customer Count	9.1	MGD
Average Projection	10.5	MGD

Use 10 MGD for Average Day Demand in 2029

EXHIBIT 5

HARDIN COUNTY WATER DISTRICT NO. 2
DETERMINATION OF TRANSMISSION PIPELINE SIZE AND PUMPING CAPACITY

Average Day of 10 MGD in 2029 (See Exhibit 4)

	Full Capacity	2/3 Capacity [(1)]
White Mills Facility	8 MGD	5.3 MGD
Supplemental Supply	2 MGD	4.7 MGD
	10 MGD	10.0 MGD

Peak Day in 2029 at 1.5 times the Average Day

Peak Day = 15 MGD

	Full Capacity	2/3 Capacity [(1)]
White Mills Facility	8 MGD	5.3 MGD
Supplemental Supply	7 MGD	9.7 MGD
	15 MGD	15.0 MGD

Design Criteria for Pipeline Size and Ultimate Pumping Capacity

10 MGD = 7,000 GPM
Velocity in 24-inch Pipe at 7,000 GPM = 4.96 feet per second

1. Use 24-inch D.I. Pipe for Transmission Pipeline.
2. Design pump facilities for initial 2-5 MGD, but design pump station size, piping, pump pedestal dimensions, etc. for future 10 MGD capacity.

(1) One treatment train out of operation.

EXHIBIT 6
OPINION OF PROBABLE COST
HARDIN COUNTY WATER DISTRICT NO. 2
LWC SUPPLY TRANSMISSION FACILITIES

I. COST FOR 4MGD CAPACITY

	UNIT	QUANTITY	UNIT COST	COST
1. 24-Inch D.I. P.O. Pipe, CL250	LF	13,300	$160.00	$2,128,000
2. 24-inch D.I. P.O. Pipe, CL350	LF	22,465	200.00	4,493,000
3. 24-inch D.I. Locked Joint Pipe, CL 350	LF	6,800	260.00	1,768,000
4. 24-Inch Butterfly Valve	EA	11	6,000.00	66,000
5. Bore & Case for 24" Pipeline	LF	1,200	600.00	720,000
6. 6" Blow-Off - Type 2	LF	1	5,000.00	5,000
7. Blue Line Stream Crossings	EA	6	15,000.00	90,000
8. Pavement Replacement				
8.1 Crushed Stone	LF	3,000	10.00	30,000
8.2 H.D. Bituminous	LF	200	35.00	7,000
8.3 Concrete	LF	200	50.00	10,000
9. Air Release Valve	EA	7	8,000.00	56,000
10. Pump Station	EA	1	2,300,000.00	2,300,000
11. Nitril Gaskets	EA	500	73.00	36,500
12. Creek Crossing Test Meter	EA	4	2,000.00	8,000
13. Fire Hydrant	EA	8	4,000.00	32,000
14. Telemetry	EA	1	50,000.00	50,000
15. Final Pipeline Cleanup	LF	42,000	2.00	84,000
16. Concrete Thrust Collar	EA	1	5,000.00	5,000
CONSTRUCTION COST				**$11,888,500**
NON-CONSTRUCTION COST @ 30%				**$3,560,000**
TOTAL COST FOR 4 MGD CAPACITY				**$15,448,500**

II. COST FOR 10 MGD CAPACITY

Land	$100,000
Second Pump Station	2,500,000
Upgrade Initial Pump Station	500,000
Pipeline	300,000
Total Construction Cost	$3,400,000
Non-Construction Cost @ 30%	1,020,000
	$4,420,000
TOTAL COST FOR 10 MGD CAPACITY	**$19,862,500**

EXHIBIT 7

HARDIN COUNTY WATER DISTRICT NO. 2
OPINION OF PROBABLE COST
WATER SOURCE AT NOLIN RIVER / ROUNDSTONE CREEK CONFLUENCE

I. PIPELINE

	UNIT	QUANTITY	UNIT COST	TOTAL COST
1. 24" D. I. CL350 Pipe	LF	80,000	$200.00	$16,000,000
2. 24" B.F. Valves	EA	15	5,000.00	75,000
3. Bored Encasement for 24" D.I. Pipe	LF	400	350.00	140,000
4. Open Cut Encasement for 24" D.I. Pipe	LF	100	300.00	30,000
5. Stream Crossings	EA	4	10,000.00	40,000
6. Pavement Replacement				
6.1 Crushed Stone	LF	6,000	10.00	60,000
6.2 Bituminous	LF	1,000	50.00	50,000
7. Fire Hydrants	EA	10	4,000.00	40,000
8. 24" Restrained Joints	EA	300	700.00	210,000
9. Pipeline Cleanup	LF	80,000	1.50	120,000
10. Tie-Ins	EA	5	9,000.00	45,000
11. Air & Vacuum Valves	EA	10	6,000.00	60,000
TOTAL PIPELINE COST				**$16,870,000**

II. 10 MGD RAW WATER INTAKE & PUMP STATION	8,000,000
III. Water Treatment Plant (Initial 4 MGD)	16,000,000
TOTAL CONSTRUCTION COST	$40,870,000
NON-CONSTRUCTION COST @ 30%	12,261,000
TOTAL PROJECT COST	**$53,131,000**

IV. EXPAND INITIAL WTP TO 10 MGD IN 2027

1. WTP Expansion of 6 MGD	$24,000,000
2. 24" Treated Water Transmission from White Mills to Tie-in to Phase 7: 24-inch Transmission Main 42,000 LF @ $200.00/LF	8,400,000
TOTAL CONSTRUCTION COST	$32,400,000
NON-CONSTRUCTION COST @ 30%	9,720,000
TOTAL PROJECT COST	**$42,120,000**

TOTAL COST FOR 10 MGD CAPACITY	**$95,251,000**

EXHIBIT 7-A

HARDIN COUNTY WATER DISTRICT NO. 2

OPINION OF PROBABLE ADDITIONAL COST TO UTILIZE NOLIN LAKE AS A RAW WATER SOURCE

	4 MGD	10 MGD
EXHIBIT 7		
Project Cost to the Nolin River/Roundstone Creek Confluence	$53,131,000	$95,251,000
ADDITIONAL COST TO REACH NOLIN LAKE		
1. 24" Pipeline & Appurtenances 27,000 LF @ $200.00/LF	$5,400,000	$5,400,000
2. Non-Construction Cost @ 30%	1,620,000	1,620,000
3. Corps of Engineers Fee for Water Allocation	2,000,000	2,000,000
4. Corps of Engineers Environmental, Encroachment Permit, etc.	104,000	104,000
TOTAL ADDITIONAL PROJECT COST	$9,124,000	$9,124,000
TOTAL ADDITIONAL COST	**$62,255,000**	**$104,375,000**

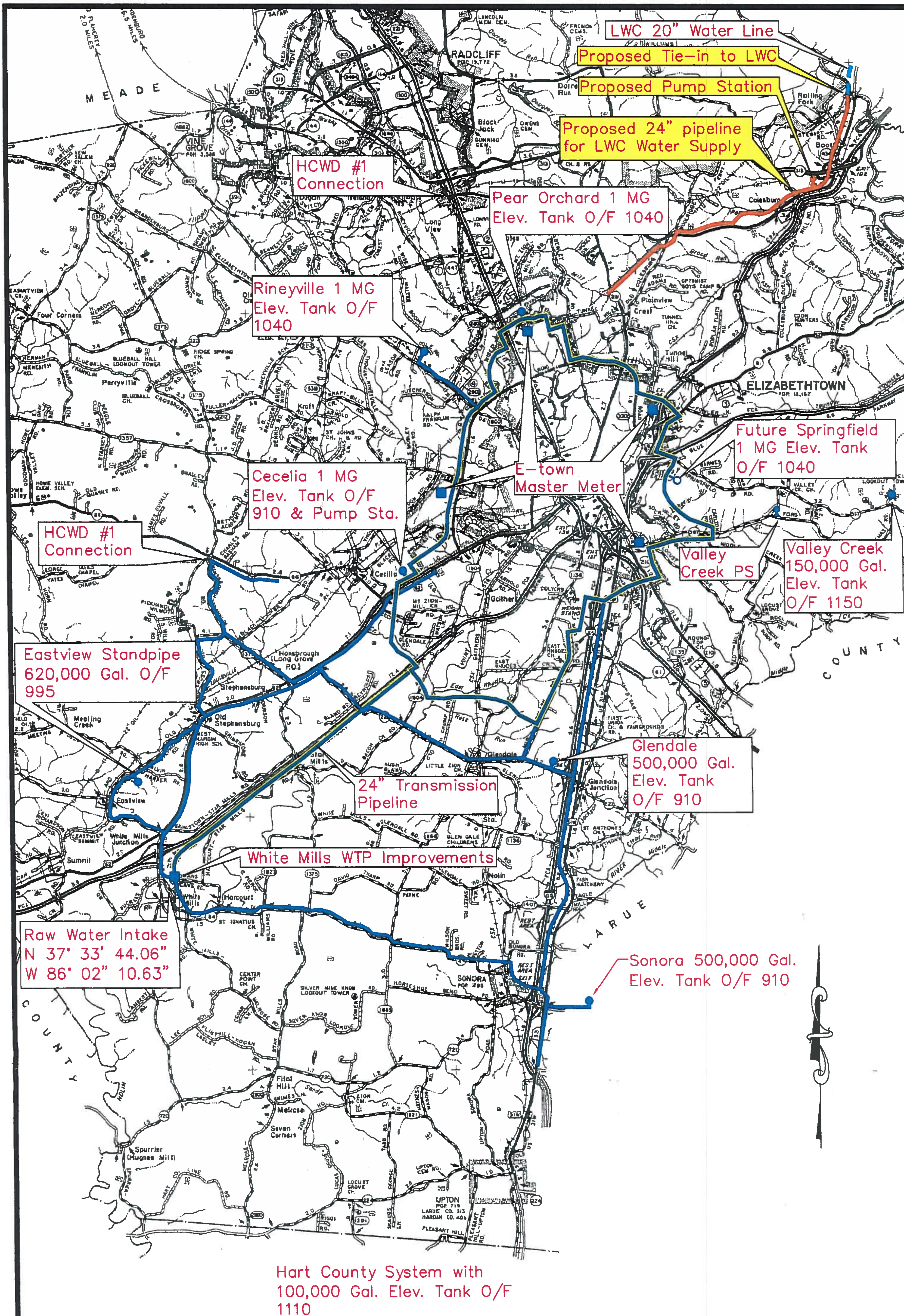
EXHIBIT 8

HARDIN COUNTY WATER DISTRICT NO. 2
REVISED COST COMPARISON FOR ALTERNATIVES

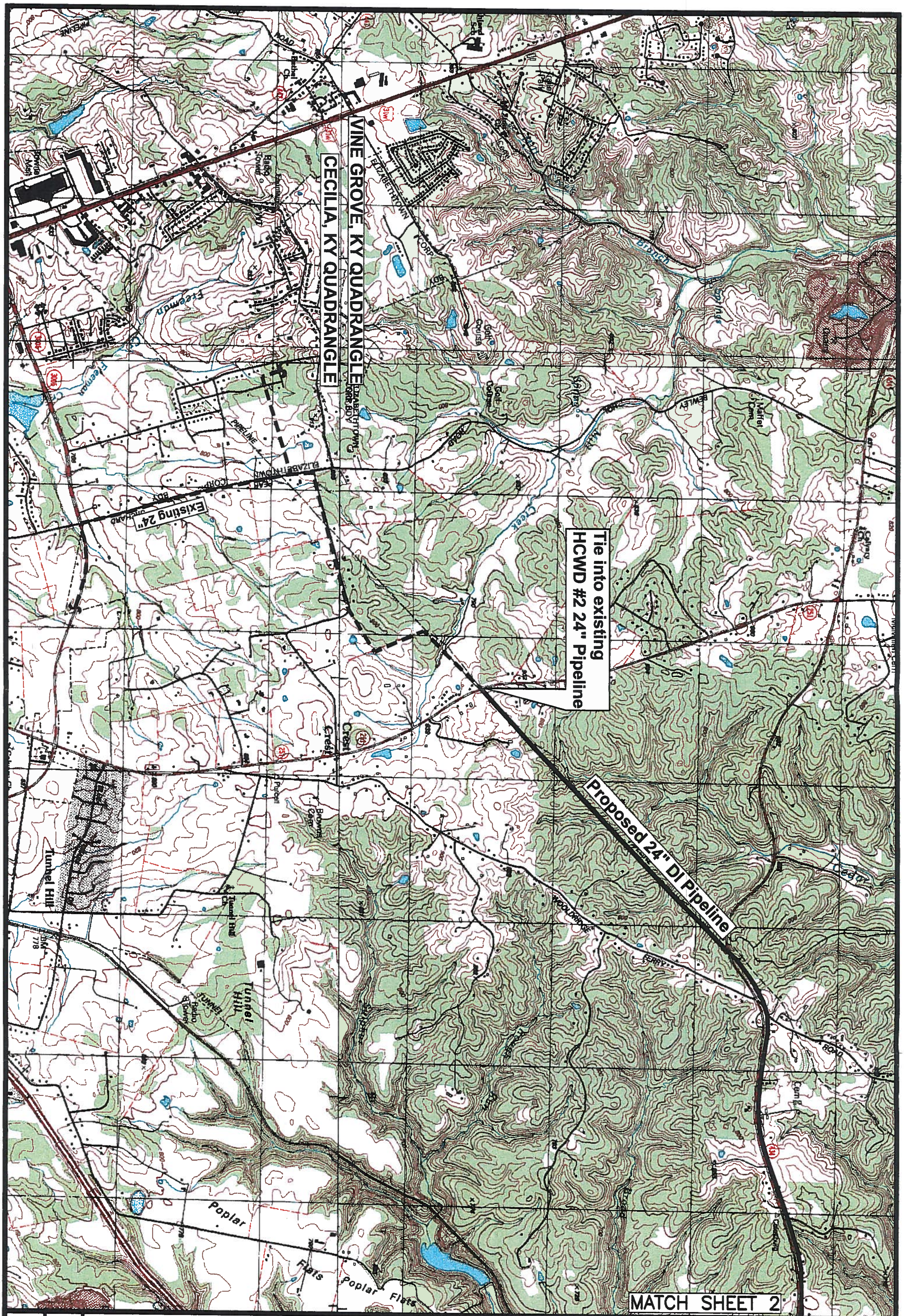
		COST PER THOUSAND GALLONS			
WATER SOURCE	Wholesale Rate (4)	Debt Service (1)	Depreciation (2)	Treatment Operation	Total
1. Nolin River @ Roundstone Creek					
1. Project Cost $53,131,000 (4 MGD)	---	$2.78	$0.70	$0.60	$4.08
2. Project Cost $95,251,000 (10 MGD) (3)	---	2.04	0.50	0.96	3.50
2. Nolin Lake (5)					
1. Project Cost $62,255,000 (4 MGD)	---	3.29	0.86	0.60	4.75
2. Project Cost $104,375,000 (10 MGD)	---	2.24	0.56	0.96	3.76
3. LWC Connection					
1. Project Cost $15,000,000 (4 MGD)	$2.05 (2013)	0.69	0.20	0.10	3.04
2. Project Cost $19,863,000 (10 MGD)	2.75	0.38	0.11	0.20	3.44

(1) Based on total project cost debt service with maximum loan of $9,500,000 from RD at 5% for 38 years and remaining from private bond issue at 5% for 20 years.
(2) Based on construction cost over 40 year period.
(3) Additional cost for initial 4 MGD treatment plant expanded to 10 MGD and treated water transmission pipeline (See Exhibit 7).
(4) Assume inflation rate of 3% per year in wholesale rate.
(5) Additional cost to reach Nolin Lake estimated to be $9,124,000 (See Exhibit 7-A).

PROJECT MAPS

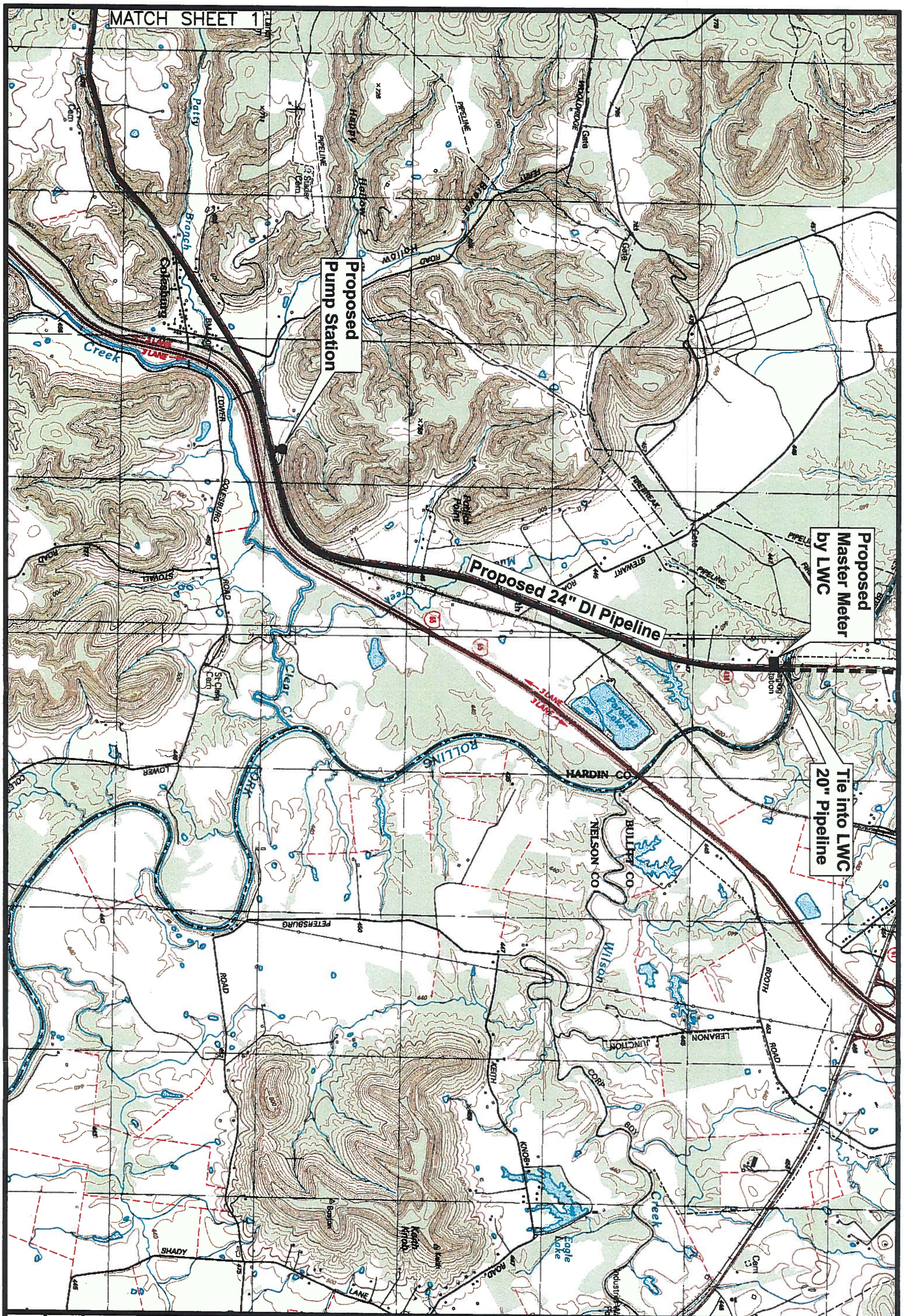


DRAWING NO. 1	PROJECT NO. 2012173	KENVIRONS, INC. FRANKFORT, KENTUCKY	DRAWN BY: JKP CHECKED BY: CFM CHECKED BY: DATE: FEB. 2009 SCALE: 1"=2 MILES REV:	HARDIN COUNTY WATER DISTRICT NO. 2 GENERAL PROJECT OVERVIEW



SHEET NO. 1 of 2	PROJECT NO. 2007107	**KENVIRONS, INC.** FRANKFORT, KENTUCKY	DRAWN BY: DGL
			CHECKED BY: CFM
			CHECKED BY:
			DATE: MARCH, 200
			SCALE: 1"=2000'
			REV:

HARDIN COUNTY WATER DISTRICT NO. 2
LOUISVILLE WATER COMPANY SUPPLY
HARDIN COUNTY, KENTUCKY



PROJECT NO. 2007107 SHEET NO. 2 of 2	**KENVIRONS, INC.** FRANKFORT, KENTUCKY	DRAWN BY: DGL CHECKED BY: CFM CHECKED BY: DATE: MARCH, 200 SCALE: 1"=2000' REV:	HARDIN COUNTY WATER DISTRICT NO. 2 LOUISVILLE WATER COMPANY SUPPLY HARDIN COUNTY, KENTUCKY

EXHIBIT 9

OPINION OF PROBABLE PROJECT COST AND FUNDING
HARDIN COUNTY WATER DISTRICT NO. 2
LWC SUPPLY TRANSMISSION FACILITIES

PROJECT COST

1. Construction Cost (Exhibit 6)		**$11,889,000**
2. Engineering		
Design	$760,000	
Construction Observation	362,000	
Preliminary Engineering Report	17,000	
Environmental Report	20,000	
Archaeological Survey	10,000	
Endangered Species Survey	10,000	
Surveying, Plat Preparation and Construction Staking	13,000	
Geotechnical Investigation	10,000	
		1,202,000
3. Land and Rights-of-Way		**50,000**
4. Legal		
Local Counsel	30,000	
Bond Counsel	30,000	
		60,000
5. Capitalized Interest		**490,000**
6. Administration		**9,000**
7. Contingencies		**1,300,000**
	Total Project Cost	**$15,000,000**

PROJECT FUNDING

BRAC Grant (Confirmed)	$5,000,000
KIA Grant (Confirmed)	500,000
Owner Contribution (Confirmed)	4,500,000
Rural Development Loan	5,000,000
Total Funding	**$15,000,000**

APPENDIX A-1

2012 REVENUES AND REVENUE REQUIREMENT
(Source: 2012 Annual Report)

1. OPERATION AND MAINTENANCE EXPENSE			
Source of Supply	$1,036,103		
Pumping	422,512		
Transmission & Distribution	1,532,263		
Customer Accounts	802,435		
Administration & General	680,949		
TOTAL O&M EXPENSES			**$4,474,262**
2. TAXES			**153,048**
3. AMORTIZATION OF DEBT DISCOUNT			**77,982**
4. DEPRECIATION			**1,633,703**
5. DEBT SERVICE			
Interest	$816,561		
Principal	909,000	(1)	
TOTAL DEBT SERVICE			**$1,725,561**
6. DEBT SERVICE COVERAGE @ 20%			**345,112**
7. INTEREST ON CUSTOMER DEPOSITS			**1,509**
TOTAL 2012 REVENUE REQUIREMENT			**$8,411,177**

8. REVENUES:	
1. Water Sales	$8,239,333
2. Miscellaneous Service Revenues	157,320
3. Other Water Revenues	144,375
4. Interest Income	685,322
TOTAL 2012 REVENUES	**$9,226,350**

(1) Determined from the difference in long term debt balances as contained in 2011 and 2012 PSC Annual Reports.

$18,977,000 (2011) - $18,068,000 (2012) = $909,000

APPENDIX A-2

ADJUSTMENTS TO 2012 REVENUES AND EXPENSES PROJECTED TO 2016

1. Increase in Salaries, Benefits & Miscellaneous Expense

1.1 Salary Increases to 2016
Increase 4.0% per year

\$2,786,689 (2012) x 1.04^4 =		\$3,260,032
	(-)	2,786,689
Adjustment	(+)	**\$473,343**

1.2 General Expenses Inflation Increases to 2016
Increase 2.0% per year

\$1,657,323 (2012) x 1.02^4 =		\$1,793,940
	(-)	1,657,323
Adjustment	(+)	**\$136,617**

2. Added Customers

2012 Avg. No. of Customers	=	16,887 (per 2012 Annual Report)
Present No. of Customers (Dec. 2012)	=	17,071
Added Customers	=	184

Water demand = 184 x 4,500 gals. x 12 mo. ÷ 0.85 = 11,689,412 gals.

2.1 Expense

Water Cost = 11,689.4 x \$0.56	(+)	\$6,546
Pumping = 11,689.4 x \$0.23	(+)	2,688
Customer Accounts = 184 x \$47.00	(+)	8,648
General & Admin. = 184 x \$40.00	(+)	7,360
	(+)	**\$25,242**

2.2 Revenues: 184 x \$31.37 x 12	(+)	**\$69,265**

3. E'town Rate Change

406,571 MGals x (\$2.2935 - \$1.99) [1]	(+)	**123,394**

4. Existing Debt Service

2016 Debt Service [2]		\$1,189,328
2012 Debt Service	(-)	1,725,561
Adjustment	(-)	**\$536,233**

5. Existing Debt Service Coverage

\$536,233 x 0.20	(-)	**\$107,246**

[1] E'town rate changed in October, 2013 to \$2.2935 per 1,000 Gals.

[2] 2012 Independent Auditor's Report, page 31

APPENDIX A-3

REVENUE REQUIREMENT FOR PROPOSED PROJECT

1.	Operating & Maintenance	
	1.1 Purchased Water: 365,000 M Gals x ($2.25 - $0.32) [1]	$ 704,450
	1.2 Pumping: 365,000 M Gals ($0.15)	54,750
	1.3 Transmission & Distribution 240 inch-mile x $100	24,000
	1.4 Chloramination Adjustment: 365,000 M Gals x $0.30	109,500
	1.5 Equipment Maintenance	30,000
2.	Debt Service	
	RD Loan: $5,000,000 @ 4.5% for 38 years	277,010
3.	Coverage at 20%	55,400
4.	Depreciation: 13,000,000 ÷ 50 years	260,000
	PROPOSED PROJECT REVENUE REQUIREMENT	**$ 1,515,100**

[1] Assumed LWC wholesale rate in 2016 - $2.25 per 1,000 gallons
White Mills WTP chemical and pumping cost - $0.32 per 1,000 gallons

APPENDIX A-4
REVENUE REQUIREMENT SUMMARY

	2012 [1]	Adjustments To 2012	Proposed Project	2016 Proforma Revenue Requirement
1. O & M Expenses				
Purchased Water	$2,497	---	$704,450	$706,947
Pumping	422,512	$2,688	54,750	479,950
Water Supply & Treatment	1,033,606	172,921	109,500	1,316,027
Transmission & Distribution	1,532,263	231,597	54,000	1,817,860
Customer Accounts	802,435	131,044	---	933,479
Admin. & General	680,949	96,952	---	777,901
	$4,474,262	**$635,202** [2]	**$922,700**	**$6,032,164**
2. Taxes	**153,048**	---	---	**153,048**
3. Amortization of Debt Discount	**77,982**	---	---	**77,982**
4. Depreciation	**1,633,703**	---	**260,000**	**1,893,703**
5. Debt Service				
Interest	816,561	(296,233)	225,000	745,561
Principal	909,000	(240,000)	52,000	721,000
	1,725,561	**(536,233)**	**277,000** [3]	**1,466,328**
6. Debt Service Coverage @ 20%	**345,112**	**(107,247)**	**55,400**	**293,265**
7. Interest on Customer Deposits	**1,509**	---	---	**1,509**
TOTAL REVENUE REQUIREMENT	**$8,411,177**	**($8,278)**	**$1,515,100**	**$9,917,999**

(1) See APPENDIX A-1
(2) APPENDIX A-2, Items 1 & 2 ($473,343 + $136,617 + $25,242 = $635,202). Expenses assigned proportionately to expense function categories.
(3) $5,000,000 RD loan at 4.5% for 38 years.

APPENDIX A-5

PROPOSED RATES
AND
COMPARISON OF RATES

METER SIZE		EXISTING RATES		PROPOSED RATES		% INCREASE
5/8" x 3/4"	First 2,000 Gals.	$18.50		$18.50		0.0
	Next 498,000 Gals.	5.15	per 1,000 gals.	5.15	per 1,000 gals.	0.0
	Over 500,000 Gals.	2.10	per 1,000 gals.	2.90	per 1,000 gals.	38.1
	(See Note Below)					
1"	First 5,000 Gals.	33.95		33.95		0.0
1 1/2"	First 10,000 Gals.	59.70		59.70		0.0
2"	First 20,000 Gals.	111.20		111.20		0.0
3"	First 30,000 Gals.	162.70		162.70		0.0
4"	First 50,000 Gals.	265.70		265.70		0.0
6"	First 100,000 Gals.	523.20		523.20		0.0
8"	First 150,000 Gals.	780.70		780.70		0.0
10"	First 250,000 Gals.	1,295.70		1,295.70		0.0
12"	First 400,000 Gals.	2,068.20		2,068.20		0.0

NOTE: The minimum bills and gallons included therein vary with meter size. The costs per thousand gallons, as contained in the 5/8" x 3/4" meter size, are the same for all meter sizes.

SUMMARY/ADDENDUM ATTACHMENT

HARDIN COUNTY WATER DISTRICT NO. 2
USAGE ANALYSIS
(Period: Jan. – Dec. 2012)
ANNUAL REVENUE UTILIZING PROPOSED RATES

RESIDENTIAL

		BILLS	1,000 GALLONS	FIRST 2,000	NEXT 498,000	OVER 500,000	REVENUE
5/8" x 3/4"	First 2,000	40,289	43,618.7	43,618.7			
	Next 498,000	146,405	771,458.9	292,810.0	478,648.9	—	
	Over 500,000	—	—	—	—	—	
		186,694	815,077.6	336,428.7	478,648.9	—	
	Rate	$18.50			$5.15	$2.90	$5,918,881
				FIRST 5,000	NEXT 495,000	OVER 500,000	
1"	First 5,000	503	1,388.6	1,388.6			
	Next 495,000	465	8,272.7	2,325.0	5,947.7	—	
	Over 500,000	—	—	—	—	—	
		968	9,661.3	3,713.6	5,947.7	—	
	Rate	$33.95			$5.15	$2.90	$63,494
				FIRST 10,000	NEXT 490,000	OVER 500,000	
1 1/2"	First 10,000	27	158.1	158.1			
	Next 490,000	57	4,122.0	570.0	3,552.0	—	
	Over 500,000	—	—	—	—	—	
		84	4,280.1	728.1	3,552.0	—	
	Rate	$59.70			$5.15	$2.90	$23,308
				FIRST 20,000	OVER 480,000	OVER 500,000	
2"	First 20,000	14	—	—			
	Next 480,000	60	5,385.5	1,200.0	4,185.5	—	
	Over 500,000	—	—	—	—	—	
		74	5,385.5	1,200.0	4,185.5	—	
	Rate	$111.20			$5.15	$2.90	$29,784
TOTALS		**187,820**	**834,404.5**				**$6,035,467**

SUMMARY ADDENDUM ATTACHMENT
(CONTINUED)

NON-RESIDENTIAL

		BILLS	GALLONS	FIRST 2,000	NEXT 498,000	OVER 500,000	REVENUE
5/8"	First 2,000	6,627	3,218.6	3,218.6			
	Next 498,000	4,056	36,334.5	8,112.0	28,222.5		
	Over 500,000	—	—	—	—	—	
		10,684	39,553.1	11,330.6	28,222.5	—	
	Rate	$18.50			$5.15	$2.90	$343,000
				FIRST 5,000	NEXT 495,000	OVER 500,000	
1"	First 5,000	390	532.2	532.2			
	Next 495,000	514	16,106.0	2,570.0	13,536.0		
	Over 500,000	—	—	—	—	—	
		904	16,638.2	3,102.2	13,536.0	—	
	Rate	$33.95			$5.15	2.90	$100,401
				FIRST 10,000	NEXT 490,000	OVER 500,000	
1 1/2"	First 10,000	145	1,450.0	1,450.0			
	Next 490,000	161	17,383.0	1,610.0	15,773.0		
	Over 500,000	3	2,004.5	30.0	1,470.0	504.5	
		309	20,837.5	3,090.0	17,243.0	504.5	
	Rate	$59.70			$5.15	$2.90	$108,712
				FIRST 20,000	NEXT 480,000	OVER 500,000	
2"	First 20,000	317	2,189.6	2,189.6			
	Next 480,000	423	45,108.9	8,460.0	36,648.9		
	Over 500,000	9	4,848.4	180.0	4,320.0	348.4	
		749	52,146.9	10,829.6	40,968.9	348.4	
	Rate	$111.20			$5.15	$2.90	$295,289
TOTALS		**11,906**	**129,175.7**				**$847,402**

Summary Addendum Attachment
(Continued)

Non-Residential

		Bills	Gallons	First 30,000	Next 470,000	Over 500,000	Revenue
3"	First 30,000	94	714.3	714.3			
	Next 470,000	152	15,897.8	4,560.0	11,337.8		
	Over 500,000	—	—	—	—	—	
		246	16,612.1	5,274.3	11,337.8	—	
	Rate	$162.70			$5.15	$2.90	$98,414
				First 50,000	Next 450,000	Over 500,000	
4"	First 50,000	13	280.0	280.0			
	Next 450,000	10	1,055.0	500.0	555.0		
	Over 500,000	35	38,782.1	1,750.0	15,750.0	21,282.1	
		58	40,117.1	2,530.0	16,305.0	21,282.1	
	Rate	$265.70			$5.15	$2.90	$161,099
				First 100,000	Next 400,000	Over 500,000	
6"	First 100,000	—	—				
	Next 400,000	—	—				
	Over 500,000	12	113,425	1,200.0	4,800.0	107,425.0	
		12	113,425	1,200.0	4,800.0	107,425.0	
	Rate	$523.20			$5.15	$2.90	$342,531
TOTALS		**316**	**170,154**				**$602,044**

APPENDIX A-6

SUMMARY OF REVENUES

1. FORECAST OF WATER SALES THROUGH USAGE ANALYSIS WITH PROPOSED RATES

Meter Size	Residential			Non-Residential		
	Annual Bills	Annual M Gallons	Annual Revenue	Annual Bills	Annual M Gallons	Annual Revenue
5/8" x 3/4"	186,694	815,078	$5,918,881	10,684	39,553	343,000
1"	968	9,661	63,494	904	16,638	100,401
1 1/2"	84	4,280	23,308	309	20,838	108,712
2"	74	5,386	29,784	749	52,147	295,289
3"				246	16,612	98,414
4"				58	40,117	161,099
6"				12	113,425	342,531
TOTALS	**187,820**	**834,405**	**$6,035,467**	**12,962**	**299,330**	**$1,449,446**

Residential:
Average Monthly Usage: 4,442 Gals.
Average Monthly Bill: $32.11

Non-Residential:
Average Monthly Usage: 23,000 Gals.
Average Monthly Bill: $109.54

2. SUMMARY OF ALL REVENUES

1. Residential Sales	$6,035,467
2. Non-Residential Sales	1,449,446
3. Added Customers (App. A-2)	69,265
4. E-town Sales (App. A-5)	932,470
5. Misc. Revenues (App. A-1, Item 8)	157,320
6. Other Revenues (App. A-1, Item 8)	144,375
	$8,788,343
Interest Income [1]	464,822
TOTAL REVENUES	**$9,253,165**

[1] The water district's invested funds will be reduced by $4,500,000. The 2012 average return on investments is 4.9%. The reduction in investment income is thereby reduced approximately $220,500. The resultant projected investment income is $464,822 ($685,322 - $220,500).

APPENDIX 7

XXXI. PROPOSED OPERATING BUDGET - (WATER SYSTEM) - EXISTING SYSTEM AND NEW USERS (1st Full Year of Operation) Year Ending 2016

A. Operating Income:		
Water Sales	$	8,486,648
Disconnect/Reconnect/Late Charge Fees		157,320
Other (Describe)		144,375
Less Allowances and Deductions		( )
Total Operating Income	$	8,788,343
B. Operation and Maintenance Expenses: (Based on Uniform System of Accounts prescribed by National Association of Regulatory Utility Commissioners)		
Source of Supply Expense	$	2,022,974
Pumping Expense		479,950
Water Treatment Expense		
Transmission and Distribution Expense		1,817,860
Customer Accounts Expense		933,479
Administrative and General Expense		777,901
Taxes		153,048
Depreciation		1,308,360
Total Operating Expenses	$	7,493,572
Net Operating Income	$	1,294,771
C. Non-Operating Income:		
Interest on Deposits	$	464,822
Other (Identify)		
Total Non-Operating Income	$	464,822
D. Net Income	$	1,759,593
E. Debt Repayment:		
RUS Interest	$	317,440
RUS Principal		86,000
Non-RUS Interest		427,888
Non-RUS Principal		635,000
Total Debt Repayment	$	1,466,328
F. Balance Available for Coverage	$	293,265

APPENDIX A-8

PERCENTAGE OF EARNED DEPRECIATION
AND
DEBT SERVICE COVERAGE

1. **DEPRECIATION**

Proforma Depreciation (Appendix A-4, Item 4)	\$ 1,893,703
Depreciation in Rate Base (Appendix 7, Item B, Depreciation)	\$ 1,308,360

Percentage of Earned Depreciation $= \frac{\$1,308,360}{\$1,893,703} = 0.691$ or **69.1%**

2. **Debt Service Coverage**

Projected Annual Revenues (App. A-6, Item 2)	\$ 9,253,165
Projected O&M Expenses (App. A-4, Items1 & 2)	\$ 6,185,212
Maximum Annual Debt Service	
Existing (2025)	\$ 1,235,045
Proposed Project	\$ 277,000
	\$ 1,512,045

Debt Service Coverage $= \frac{\$9,253,165 - \$6,185,212}{\$1,512,045} =$ **2.03**

APPENDIX 1

LWC AND HCWD2
DBP FORMATION ASSESSMENT

LWC & HCWD#2

DBP Formation Assessment

November 2011

LOUISVILLE
WATER
since 1854

Acknowledgements

The LWC, HCWD#2, HDR, and Kenvirons would like to recognize the following individuals for their various contributions to this study:

- James Jeffries, Shaun Youravich, and Stuart Erhardt of HCWD#2
- Jim Smith, Emily Bauer, Dr. Eric Zhu, Chris Bobay, Dr. Rengao Song, and the Water Quality staff at LWC
- Phil Brandhuber and Brent Tippey of HDR
- Vaughn Williams of Kenvirons

Section 1 LWC CHFP Water Quality

1.1 Brief Regulatory Overview and WQ at the CHFP

Drinking water is federally regulated by the USEPA under the authority of the Safe Drinking Water Act (SDWA), established by Congress in 1974. The SDWA was extensively amended in 1986 and again in 1996. The Kentucky Division of Water (KDOW), which has been given primacy by EPA, enforces these regulations in Kentucky.

The Louisville Water Company (LWC) currently produces drinking water that meets all current regulations for potable water quality. The water is also aesthetically pleasing as evident from the LWC winning the "Best Tap Water in America" taste test in 2008.

Microorganisms
The Crescent Hill Filtration Plant (CHFP) consisting of conventional coagulation/clarification/filtration and chlorine disinfection meets all current federal requirements for control of microorganisms including the more restrictive LT2 Rule with respect to *Cryptosporidium.*

Disinfectants and Disinfection By-products (D/DBPs)
To meet compliance, the LWC balances the free chlorine contact time by adding the chlorine after some pre-treatment and adding ammonia soon after to form chloramines after the primary disinfection "CT" requirements are met, where "C" is the disinfectant residual and "T" is the contact time. The LWC uses chloramines for residual disinfection and has had no difficulty with DBP compliance.

Inorganic and Organic Chemicals and Radionuclides
The LWC has been monitoring these regulated chemicals. The LWC's source of raw water is the Ohio River. Barium, chromium, and nickel are detected in the river, but at concentrations which are orders of magnitude below their regulatory limits.

Therefore, the LWC has had no difficulty meeting the primary limits for both inorganic and organic chemicals and also for radionuclides.

Secondary Drinking Water Regulations
These are non-enforceable guidelines for regulating contaminants that may cause cosmetic or aesthetic effects in drinking water, e.g., taste and odor, color, tooth discoloration, etc.

One secondary contaminant of concern for water quality reasons is manganese (Mn). Even though the secondary limit for manganese is 0.05 mg/L, the LWC treatment goal is to limit manganese below 15 parts per billion (ppb) or 0.015 mg/L in finished water. Manganese concentrations above 15 ppb may impart color to the water, cause stains during laundering and dishwashing operations. The LWC successfully treats Mn with pH and oxidant (chlorine and permanganate) to less than 15 ppb.

Taste and odor (T&O) is also a concern for customer satisfaction and the LWC does an excellent job as evidenced by the LWC obtaining the "Best Tasting Water Award" in 2008. LWC monitors source water algae and concentrations of T&O-causing compounds so that plant staff can respond promptly. Currently, the LWC feeds powdered activated carbon (PAC) at the raw water reservoir for T&O control. The LWC is constructing a new PAC feed system for the CHFP at the Zorn Intake at Ohio River.

In summary, LWC water exceeds all primary and secondary drinking water requirements.

1.2 Current Regulations

EPA is working on the development of new drinking water regulations. Therefore, the schedule, content, and number of new regulations is continuously changing. Consequently, LWC regularly assess updates from the EPA. These regulations include:

- Long Term Stage 2 Enhanced Surface Water Treatment Rule (LT2ESWTR);
- The Lead and Copper Rule (LCR) revisions;
- Stage 1 D/DBPR, Stage 2 D/DBPR;
- Interim Enhanced Surface Water Treatment Rule (IESWTR);
- Long Term Stage 1 Enhanced Surface Water Treatment Rule (LT1ESWTR);
- Total Coliform Rule (TCR) and Anticipated Revisions.

Long-Term Stage 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) Cryptosporidium Treatment Details

Under the LT2ESWTR, one additional log of *Cryptosporidium* removal is required at the CHFP effective April 1, 2012. LWC has been preparing for LT2 and has a solid plan in place which provides an additional 1.5 log of removal. Our plan is to use lowered turbidity out of the filters for up to 1.0 log *Cryptosporidium* added treatment credit. In addition, a safety factor of 0.5 logs is to be provided by "pre-sedimentation basins with coagulation" option, which is allowed under the LT2.

Lead and Copper Rule Revisions

LWC uses a KDOW approved pH-alkalinity-hardness approach to balance/stabilize its water quality at CHFP. LWC has always been in compliance with LCR. LWC has a proactive program in phasing out lead service lines and goose necks.

Stage 1 Disinfectants/ Disinfection By-Products Rule (D/DBPR) Maximum Contaminant Levels (MCLs) for Disinfection By-Products

The LWC has been in compliance meeting the MCLs for TTHMs and HAA5's historically.

Stage 2 Disinfectants/ Disinfection By-Products Rule (D/DBPR) Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLGs) for Disinfection Byproducts

The Stage 2 D/DBPR will apply the running annual average (RAA) of 80 μg/L TTHMs and 60 μg/L of HAA5 to individual locations in the distribution system.

Review of the historical data indicates that the LWC will readily comply with the Stage 2 DBP LRAA limits of 80 μg/L TTHMs and 60 μg/L HAA5's because of the use of combined chlorine as a terminal disinfectant.

Interim Enhanced Surface Water Treatment Rule (IESWTR) and Long-Term Stage 1 Enhanced Surface Water Treatment Rule (LT1ESWTR) Turbidity Requirements

The LWC is in compliance with the Rule and no problems are foreseen in the future.

Total Coliform Rule (TCR) and Anticipated Revisions

The LWC is currently in compliance with TCR and no problems are anticipated in the future as long as the LWC staff is proactive and diligent in controlling nitrification and microbial regrowth and localized contamination, as it has in the past.

1.3 Future Regulations

Potential regulatory issues in the future include:

- Emerging contaminants including pharmaceuticals and personal care products (PPCPs) and endocrine disruptor chemicals (EDCs): The list of chemicals for possible future regulation is large and changing. Unless Congress intervenes, any regulation of these chemicals would occur through the current process, e.g., CCL and UCMR. EPA has published a list of contaminants (CCL3) and a draft list of UCMR3. The LWC is tracking the UCMR3 and will monitor the UCMR3 contaminants in 2013.

- Final Revised Total Coliform Rule (RTCR) which is tentatively scheduled to be published in 2012. This revision focuses on e-coli monitoring for compliance, but adds triggers that may necessitate future studies.
- Possible Long-Term Revisions to the Lead and Copper Rule (LCR).
- Revised to VOC regulations. These potential revisions should have no impact on LWC

1.4 Conclusions

The LWC currently produces excellent quality drinking water meeting all current regulations for potable water quality. The water is also aesthetically pleasing as evident from the LWC winning the "Best Tap Water in America" taste test in 2008.

The LWC has had no difficulty meeting the current regulations like the SOCs, TCR, LCR, Stage 2 D/DBPR, IESWTR, and LT1ESWTR and TOC removal requirements for the Stage 1 D/DBPR.

The water quality review shows the current surface water source to have T&O causing compounds every few years. LWC has been very successful in feeding PAC to three locations as needed, to remove the T&O causing compounds.

Water treatment at CHFP will be further enhanced by either ozonation or river bank filtration (RBF), which will further improve the finished water quality.

Section 2 LWC-HCWD #2 DBP Assessment

2.1 Testing Description

The objectives of the LWC-HCWD#2 DBP Assessment project are to: 1). understand DBP formation potentials for the two waters under various conditions; and 2). evaluate feasibility of breakpoint conversion or chloramines conversion. To achieve these two objectives, four parts of studies are proposed: 1). Full-scale DBP monitoring; 2). Modified simulated distribution system (mSDS) testing; 3). Breakpoint and chloramine conversion testing; and 4). Modified uniform formation conditions (mUFC) testing.

2.2 Testing Protocols

2.2.1 Full-scale DBP Monitoring

The full-scale DBP monitoring was established to survey water quality within the distribution system for each utility. This survey was also to provide data to validate mSDS results. Samples were taken from three locations: entry point to the distribution system (EPDS); average retention time (ART) site and maximum retention time (MRT) site in the distribution system. The samples collected were evaluated for pH, temperature, disinfectant residual, UV, DOC, and DBPs.

2.2.2 Modified SDS Testing

The mSDS test was established to understand DBP formation kinetics under existing/real conditions. Raw water and finished water from EPDS at each utility was taken and measured for pH, temperature, disinfectant residual, nitrogen, UV, DOC, alkalinity, hardness, conductivity, bromide, THM and HAA. Samples of the finished water were held at a system average temperature for five days. The samples were analyzed for water quality and DBPs after 24, 72, and 120 hours.

Objective	To understand DBP formation and reaction kinetics	
Water	LWC	HCWD #2
Sample Location	EPDS	
Initial Residual (ppm)	(Real) Chloramine	(Real) Free
pH (SU)	Real	
Temperature (C)	System average	
Test Frequency	Monthly	
Sample interval	0, 1d, 2d, 3d, 5d	
Major Parameters	THM, HAA5, Bromide, DOC, UVA254	

2.2.3 Conversion Testing

The conversion test was established to understand DBP formation and reaction kinetics after breakpoint conversion for LWC water and after chloramine conversion for HCWD#2 water. For LWC, water was collected from the MRT site and spiked with a hypochlorite solution for a target chlorine residual of 0.5-1.0 mg/L on day 5. Hardin County water was collected at the EPDS and spike with ammonia for 3:1 chlorine to ammonia ratio. This spike was based on the free chlorine residual of the finished water at the time of collection. Exactly like the mSDS test, samples of the converted waters were held at a system average temperature for five days and analyzed for water quality and DBPs after 6, 24, 72, and 120 hours.

Objective	To understand DBP formation and reaction kinetics after conversions	
Water	LWC	HCWD #2
Sample Location	Lebanon Junction	EPDS
Initial Residual (ppm)	1.5-2.0 Free (bkpt)	Real (1.8-2.5) Chloramines
Final Residual Target (ppm)	1.0±0.5 Free Cl_2	0.5-1.0 Chloramines
Spike	NaOCl	NH_4Cl @ Cl_2:NH_3=3:1
pH (SU) & Temperature (C)	Real	
Test Frequency	Bimonthly	
Sample interval	0, 6, 24, 72, 120 hrs	
Major Parameters	THM, HAA5, Bromide, DOC, UVA_{254}	

EPDS, Entry point to distribution system
Bkpt Breakpoint

2.2.4 Modified UFC Testing

The UFC test was established to characterize DBP formation potential and precursors under uniform conditions. Post-sedimentation, pre-chlorinated water was collected and filtered through a glass microfiber filters. The pH of the waters were adjusted to 8 and buffered with a pH 8 borate buffer. Based on chlorine demand spike tests, the filtered water was spiked with a pH 8 combined hypochlorite buffer for a target residual of 1.0 mg/L Cl_2. Samples of the converted waters were held at 20 °C for five days and analyzed for water quality and DBPs after 6, 24, 72, and 120 hours.

Objective	To characterize DBPFP and precursors under uniform conditions	
Water	LWC	HCWD #2
Sample Location	Post Sed Pre-Cl2*	
Initial Residual (ppm)	DOC and Spike Test Determined	
Final Residual Target (ppm)	1.0 ± 0.5 Free Chlorine	
Spike Volume	Based on chlorine demand spike test (pH 8 hypochlorite buffer)	
pH (SU)	8.0 (with borate buffer)	
Temperature (C)	20	
Test Frequency	Biannually	
Sample interval	0, 6, 24, 72, 120 hrs	
Major Parameters	THM, HAA5, Bromide, DOC, UVA254	

Section 3 Results and Discussion

A comprehensive DBP formation assessment was performed by the LWC Water Quality and Research staff and supported by the HCWD#2, HDR, and Kenvirons project team during October 2010-November 2011 using the protocols described in Section 2. Major findings of the study are summarized below.

3.1 DBP evaluation criteria

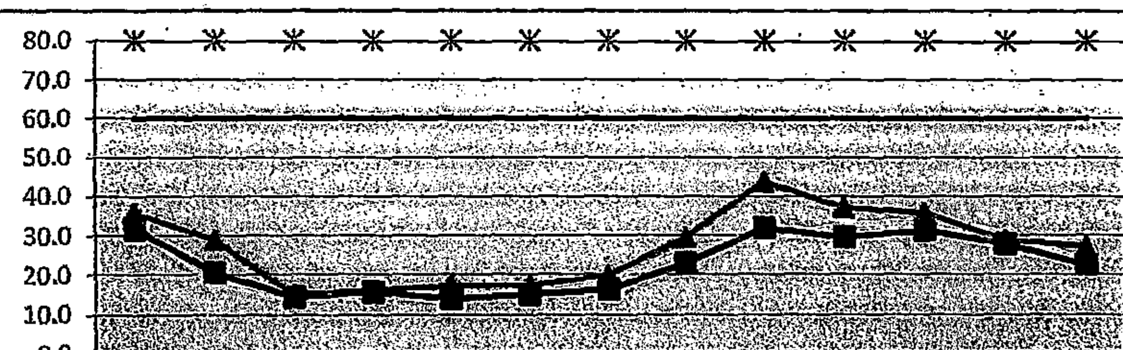
The Stage 2 D/DBPR will apply the RAA of 80 μg/L TTHMs and 60 μg/L of HAA5 to individual locations (LRAA) in the distribution system. As industry leaders, both LWC and HCWD#2 are committed to continuously improving its water quality and meeting future regulations. Therefore, the following DBP evaluation criteria were proposed.

- Criteria I-Regulation requirement: LRAA levels < 80 μg/L TTHMs and 60 μg/L HAA5;
- Criteria II- Potential future regulation and internal goals: LRAA levels for TTHM and HAA5 < 75% of Stage 2 D/DBPR of 80 and 60 μg/L, respectively (LRAA concentrations < 60 μg/L TTHM and 45 μg/L HAA5);
- Criteria III- Internal goals: Levels < 80 μg/L TTHM and 60 μg/L HAA5 at any location at any given time.

3.2 Full-scale Monitoring

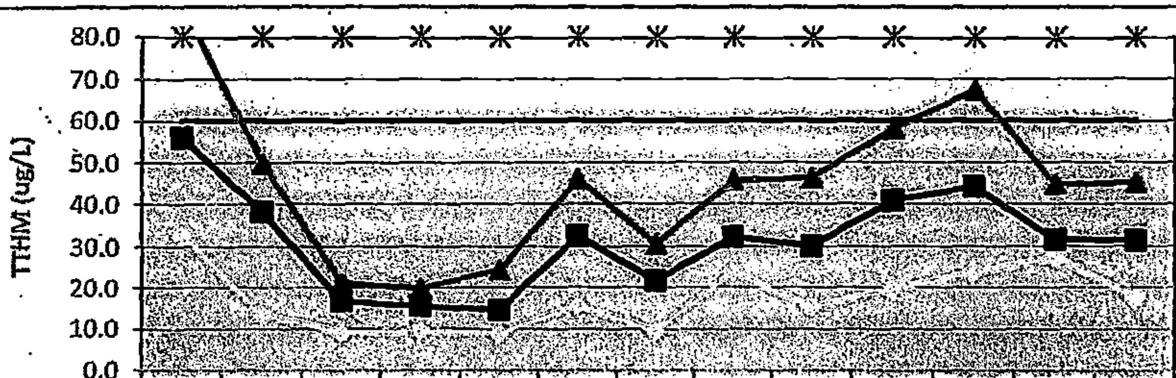
The full-scale DBP monitoring was conducted to survey DBP formation within the distribution systems for both LWC and HCWD#2.

3.2.1 TTHM



	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	LRAA
EPDS	32.9	17.7	13.5	15.1	13.9	15.0	18.8	26.4	28.9	32.4	33.5	30.5	23.2
ART	31.5	20.6	14.5	15.8	14.1	15.0	16.3	23.1	31.9	29.7	31.2	28.0	22.6
MRT	35.9	29.0	15.2	16.1	17.4	17.3	20.0	29.6	43.9	37.2	35.9	29.0	27.2
Goal	60	60	60	60	60	60	60	60	60	60	60	60	60
MCL	80	80	80	80	80	80	80	80	80	80	80	80	80

Figure 1. LWC TTHM at EPDS, ART, & MRT



	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	LRAA
EPDS	33.3	13.6	9.3	9.6	9.0	15.5	9.5	23.7	15.3	19.6	23.5	27.2	17.4
ART	55.9	38.5	17.0	15.5	14.8	32.5	21.7	32.4	30.2	40.8	44.4	31.7	31.3
MRT	87.6	49.7	21.2	20.0	24.5	46.1	30.7	45.7	46.3	58.1	67.5	44.9	45.2
Goal	60	60	60	60	60	60	60	60	60	60	60	60	60
MCL	80	80	80	80	80	80	80	80	80	80	80	80	80

Figure 2. HCWD #2 TTHM at EPDS, ART, & MRT

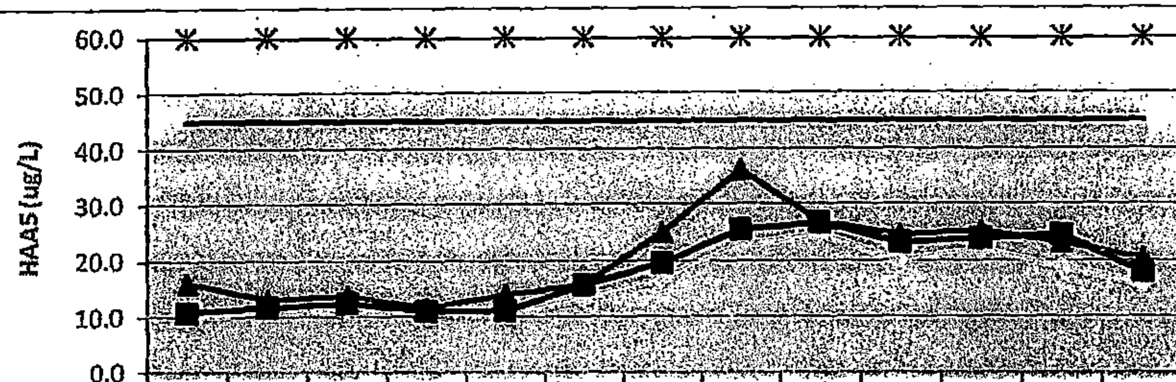
Figure 1 shows LWC TTHM data which indicate:

- ♦ TTHM levels for LWC remain relatively stable over 12-month period despite fluctuations in water quality conditions such as temperature, bromide and DOC levels. This is a typical trend for chloramine systems;
- ♦ LRAA levels overlap at 23, 23, and 27 μg/L at EPDS, ART, and MRT, independent of residence time. With the highest LRAA of 27 μg/L, LWC can meet 40/30 μg/L DBP waver for TOC rule;
- ♦ TTHM concentrations at all locations at any given time meet the strict goal of < 60 μg/L (all data < 40 μg/L except July TTHM at MRT site).

Figure 2 shows HCWD#2 TTHM data which indicate:

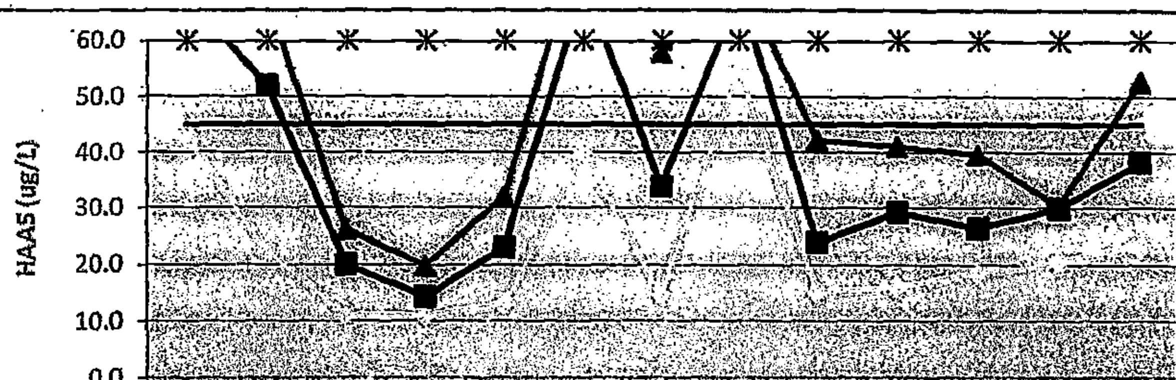
- ♦ TTHM levels meet current and future regulatory requirements
- ♦ TTHM levels for HCWD#2 fluctuate as a function of water quality conditions such as temperature, bromide and DOC levels;
- ♦ TTHM levels for HCWD#2 also increase as retention time increases. Namely, the highest TTHM levels occur at MRT site while the lowest levels at EPDS. This is a typical trend for free chlorine systems;
- ♦ HCWD#2 TTHM concentrations cannot meet the following internal DBP goal:
  - o < 80 μg/L TTHM at any location at any given time.

3.2.2 HAA5



	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	LRAA
EPDs	9.9	11.1	11.6	10.6	10.3	13.3	16.8	22.8	24.7	20.0	21.9	18.9	16.0
ART	10.7	11.7	12.4	11.1	11.1	15.7	19.7	25.6	26.7	23.4	24.0	24.7	18.1
MRT	16.1	13.1	13.8	11.4	14.0	15.6	25.1	36.2	27.0	24.6	25.3	23.2	20.5
Goal	45	45	45	45	45	45	45	45	45	45	45	45	45
MCL	60	60	60	60	60	60	60	60	60	60	60	60	60

Figure 3. LWC HAA5 at EPDS, ART, & MRT



	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	LRAA
EPDS	42.5	22.4	11.1	10.8	12.8	40.0	14.4	55.0	14.9	16.0	18.4	20.4	23.2
ART	67.8	52.0	20.1	14.3	23.0	70.0	34.0	68.9	23.9	29.4	26.6	30.1	38.3
MRT	122.3	67.2	26.4	19.9	32.0	81.0	58.0	72.2	42.2	41.1	39.7	30.5	52.7
Goal	45	45	45	45	45	45	45	45	45	45	45	45	45
MCL	60	60	60	60	60	60	60	60	60	60	60	60	60

Figure 4. HCWD #2 HAA5 at EPDS, ART, & MRT

Figure 3 shows LWC HAA5 data which indicate:

- HAA5 levels for LWC remain relatively stable despite fluctuations in water quality conditions such as temperature, bromide and DOC levels. This is a typical trend for chloramine systems;
- HAA5 levels overlap at EPDS, ART, and MRT, independent of residence time;
- LWC HAA5 concentrations at all locations at any given time meet the strict goal of < 45 μg/L (all data < 30 μg/L except June HAA5 at MRT site).

Figure 4 shows HCWD#2 HAA5 data which indicate:

- HAA5 levels for HCWD#2 fluctuate as a function of water quality conditions such as temperature, bromide and DOC levels;
- HAA5 levels for HCWD#2, in general, increase as retention time increases. Namely, the highest HAA5 levels occur at MRT site while the lowest levels at EPDS. However, June 2011 HAA5 concentrations are similar at ART and MRT sites.
- HCWD#2 HAA5 concentrations cannot meet the following DBP criteria:
    - < 60 μg/L HAA5 at any location at any given time. There are 7 samples at ART and MRT sites at different time of year exceeded the 60 μg/L goal, with the highest HAA5 level to be 122 μg/L.

3.2.3 Summary of Full-Scale TTHM and HAA5 Monitoring

The full-scale DBP results indicate that LWC has no difficulty to meet the strict Stage 2 D/DBPR regulation in 2012. The data also suggest that HCWD#2 may not meet HAA5 LRAA requirements. For example, the LRAA level is 53 μg/L at MRT site, which is not necessarily the maximum LRAA site for HAA5. HCWD#2 can meet Stage 2 TTHM regulation.

3.3 Modified SDS Testing

The mSDS test was established to understand DBP formation kinetics under existing/real distribution system conditions at different time intervals of 0, 24, 72, and 120 hours of reaction time.

3.3.1 Representativeness of mSDS Testing of Full-scale Conditions

The study results indicate that the mSDS test has represented the full scale distribution system behavior very well for both LWC and HCWD#2. The 5 day test is a good approximation of the MRT of the HCWD#2 system.

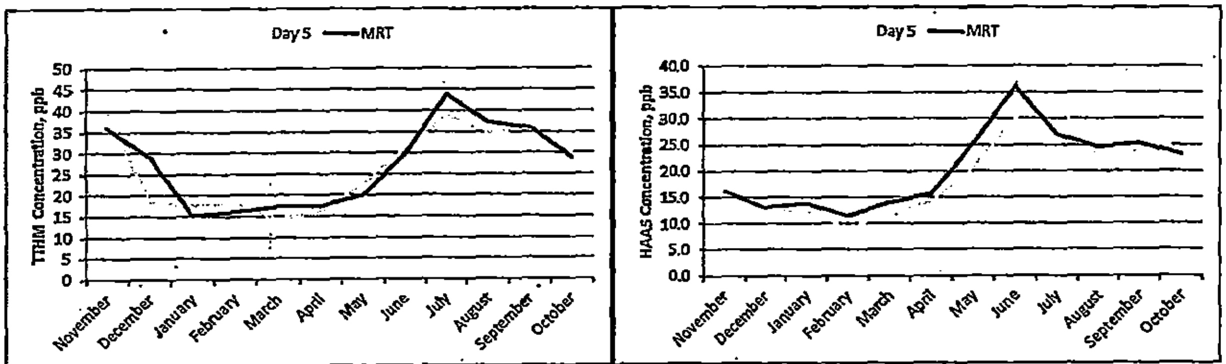


Figure 5. Comparison of DBP formation between 5-day mSDS and full-scale distribution system for LWC water

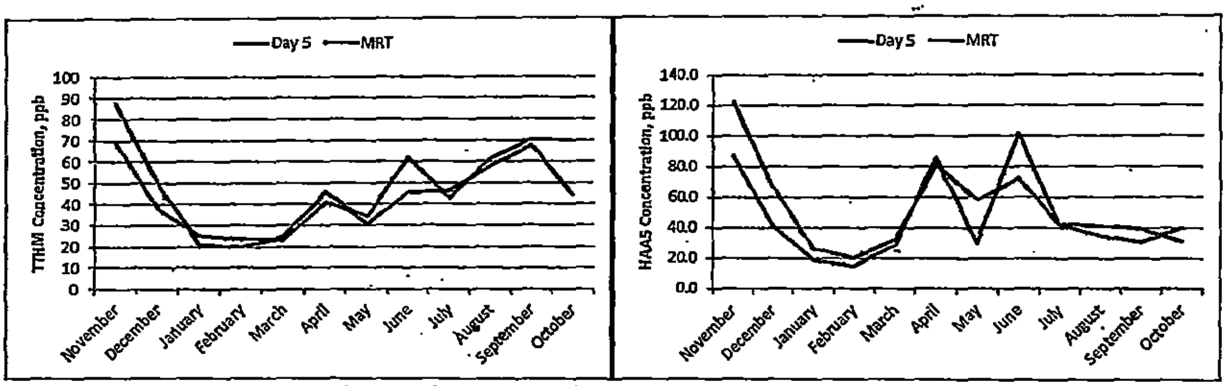


Figure 6. Comparison of DBP formation between 5-day mSDS and full scale distribution system for HCWD#2 water

Figures 5 and 6 illustrate that the DBP formation trends varied in similar manners between 5-day mSDS and full scale distribution samples for both LWC and HCWD#2 waters. Their yearly average values are also very close as summarized in the table below. According to LWC hydraulic model, the water age for the LWC MRT site is approximately 6 days, which matched very well with the DBP formation data (MRT level slightly higher than 5 Day mSDS).

12 month average DBP formation: 5 Day mSDS vs. MRT measurement

	Ave. 5 Day THM	Ave. MRT THM	Ave. 5 Day HAA	Ave. MRT HAA
LWC	26	27	19	21
HC2	47	45	46	53

The statistical correlations between SDS and full scale distribution system data are summarized in the following table. Again, the results demonstrate that the mSDS tests in general represent the real world distribution system very well.

Correlation between mSDS and full scale data – linear regression R^2 summary

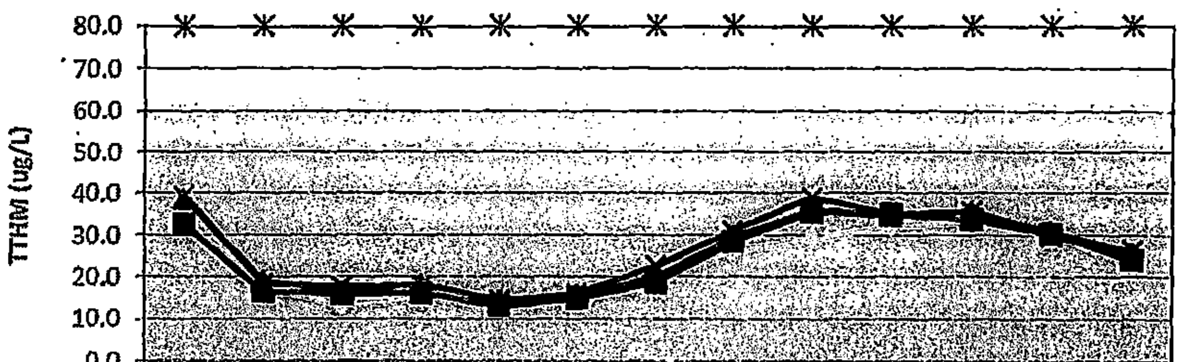
	3-day mSDS vs. ART		5-day mSDS vs. MRT	
	HAA	THM	HAA	THM
LWC	0.89	0.95	0.85	0.84
HC2	0.84	0.69	0.66	0.68

Excellent: $R^2 > 0.9$ Good: $R^2 = 0.75 - 0.90$ Fair: $R^2 = 0.6 - 0.75$ Poor: $R^2 < 0.6$

3.3.2 TTHM

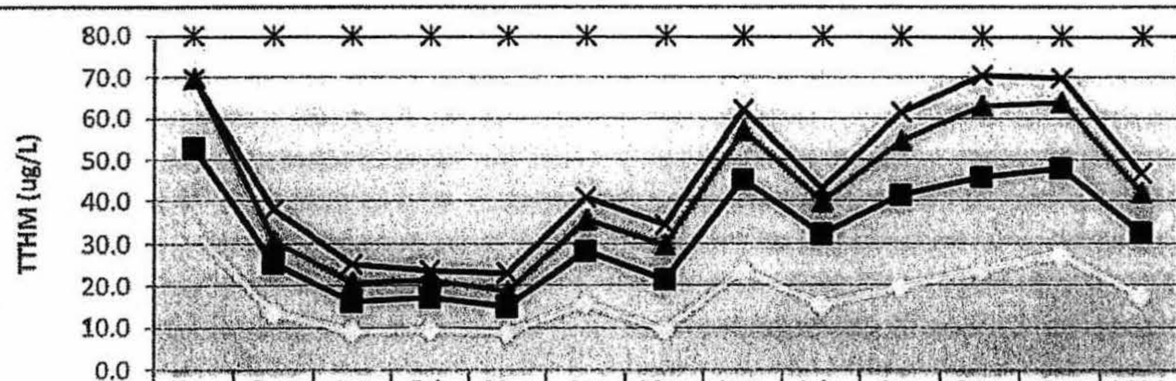
Figures 7 and 8 illustrate TTHM formation during the 5-day mSDS testing for both LWC and HCWD#2.

TTHM levels for LWC water remain very stable despite fluctuations in water quality and treatment conditions. However, TTHM levels for chlorinated water (HCWD#2) were subjected to significant fluctuations with the change in seasons and water quality parameters.



	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	LRAA
0-day	32.9	17.7	13.5	15.1	13.9	15.0	18.8	26.4	28.9	32.4	33.5	30.5	23.2
1-day	32.5	16.5	16.1	16.2	13.1	15.1	18.7	28.7	35.8	34.9	33.8	30.5	24.3
3-day	38.9	19.4	16.3	18.4	14.3	16.1	20.0	29.9	35.7	34.8	35.6	31.2	25.9
5-day	39.4	18.5	17.7	18.0	14.3	16.1	22.6	31.1	39.0	34.9	35.7	29.8	26.4
MCL	80	80	80	80	80	80	80	80	80	80	80	80	80

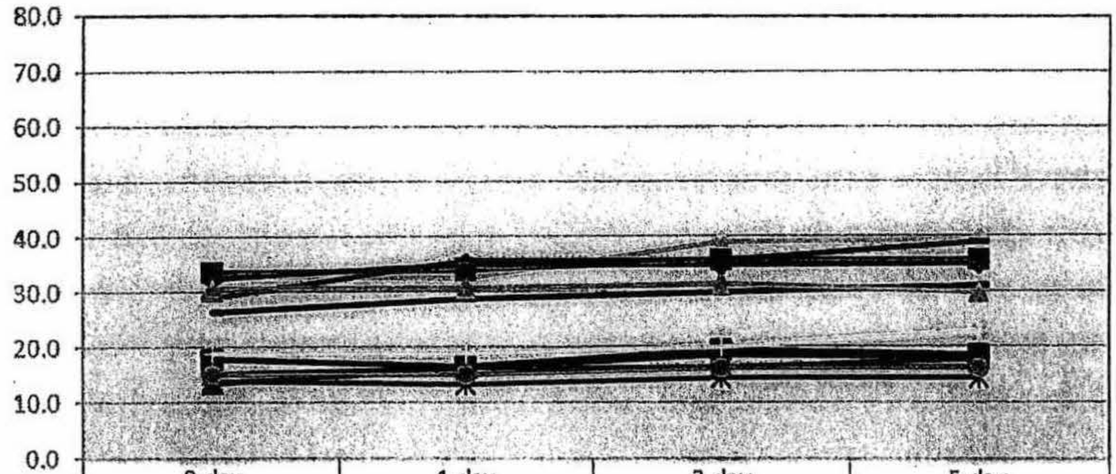
Figure 7. LWC TTHM formation during the 5-day mSDS testing



	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	LRAA
0-day	33.3	13.6	9.3	9.6	9.0	15.5	9.5	23.7	15.3	19.6	23.5	27.2	17.4
1-day	52.9	25.5	16.2	17.2	15.0	28.4	21.6	45.1	32.2	41.6	45.9	48.1	32.5
3-day	69.8	30.7	20.8	21.6	18.6	35.7	29.8	57.2	39.9	54.7	63.1	63.9	42.2
5-day	69.5	38.2	25.2	23.6	22.9	41.0	34.4	62.3	43.0	61.4	70.4	69.9	46.8
MCL	80	80	80	80	80	80	80	80	80	80	80	80	80

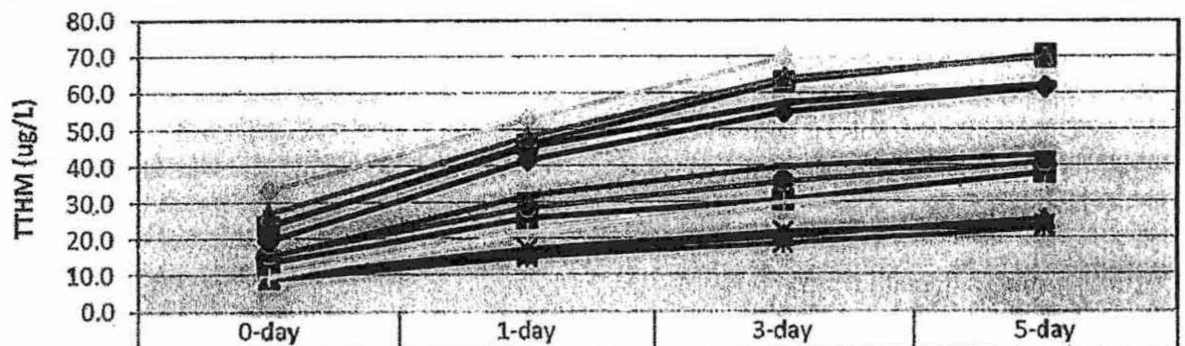
Figure 8. HCWD#2 TTHM formation during the 5-day mSDS testing

Figures 9 and 11 demonstrate TTHM formation kinetics. Once again, LWC water TTHM levels remain constant in CHFP clear-well and distribution sites. In contrast, HCWD#2 TTHM levels increase as the water travels in the distribution system as long as there are chlorine residuals. On average, HCWD#2 TTHM levels increased by 175% in five days under mSDS conditions whereas LWC TTHMs only increased by 14% during the same period (See Figure 11).



	0-day	1-day	3-day	5-day
Nov	32.9	32.5	38.9	39.4
Dec	17.7	16.5	19.4	18.5
Jan	13.5	16.1	16.3	17.7
Feb	15.1	16.2	18.4	18.0
Mar	13.9	13.1	14.3	14.3
Apr	15.0	15.1	16.1	16.1
May	18.8	18.7	20.0	22.6
June	26.4	28.7	29.9	31.1
July	28.9	35.8	35.7	39.0
Aug	32.4	34.9	34.8	34.9
Sept	33.5	33.8	35.6	35.7
Oct	30.5	30.5	31.2	29.8

Figure 9. LWC TTHM formation kinetics



	0-day	1-day	3-day	5-day
Nov	33.3	52.9	69.8	69.5
Dec	13.6	25.5	30.7	38.2
Jan	9.3	16.2	20.8	25.2
Feb	9.6	17.2	21.6	23.6
Mar	9.0	15.0	18.6	22.9
Apr	15.5	28.4	35.7	41.0
May	9.5	21.6	29.8	34.4
June	23.7	45.1	57.2	62.3
July	15.3	32.2	39.9	43.0
Aug	19.6	41.6	54.7	61.4
Sept	23.5	45.9	63.1	70.4
Oct	27.2	48.1	63.9	69.9

Figure 10. HCWD#2 TTHM formation kinetics

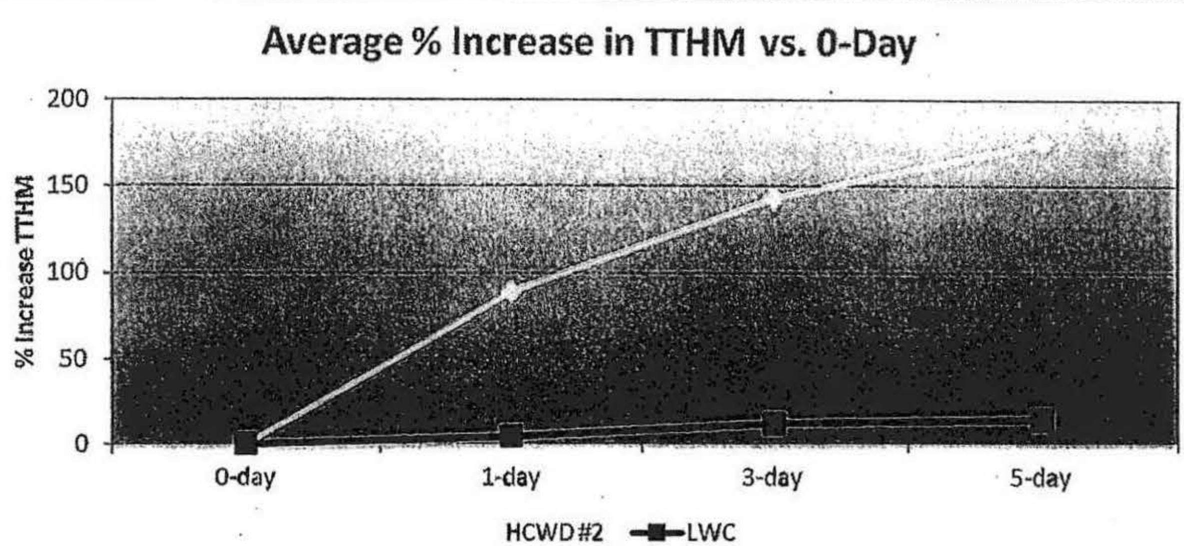
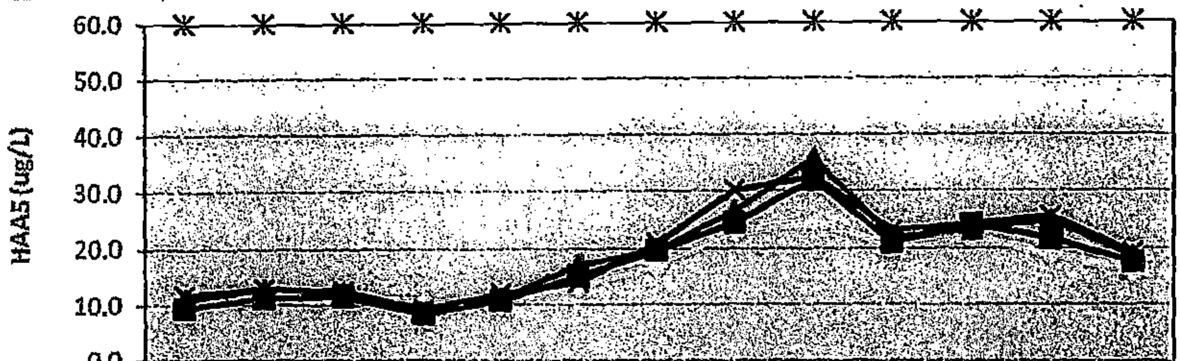


Figure 11. Comparison of yearly average TTHM profiles for LWC and HCWD#2 under mSDS conditions

3.3.3 HAA5

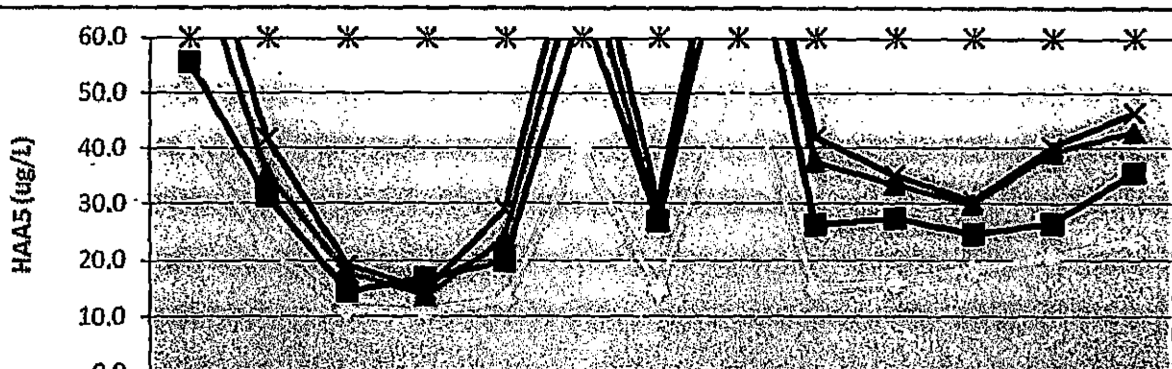
Figures 12 and 13 illustrate HAA5 formation during the 5-day mSDS testing for both LWC and HCWD#2.

HAA5 levels for LWC water remain very stable despite fluctuations in water quality and treatment conditions. However, HAA5 levels for chlorinated water (HCWD#2) were subjected to fluctuations with the change in seasons and WQ parameters.



	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	LRAA
0-day	9.9	11.1	11.6	10.6	10.3	13.3	16.8	22.8	24.7	20.0	21.9	18.9	16.0
1-day	9.5	11.3	11.5	8.5	10.9	15.0	19.7	24.4	32.1	20.9	24.1	21.7	17.5
3-day	11.0	12.8	12.2	8.5	11.1	17.0	19.7	26.5	35.8	21.8	23.4	24.8	18.7
5-day	11.8	12.9	12.4	9.1	12.0	14.1	20.7	30.2	32.6	23.1	24.1	25.6	19.1
MCL	60	60	60	60	60	60	60	60	60	60	60	60	60

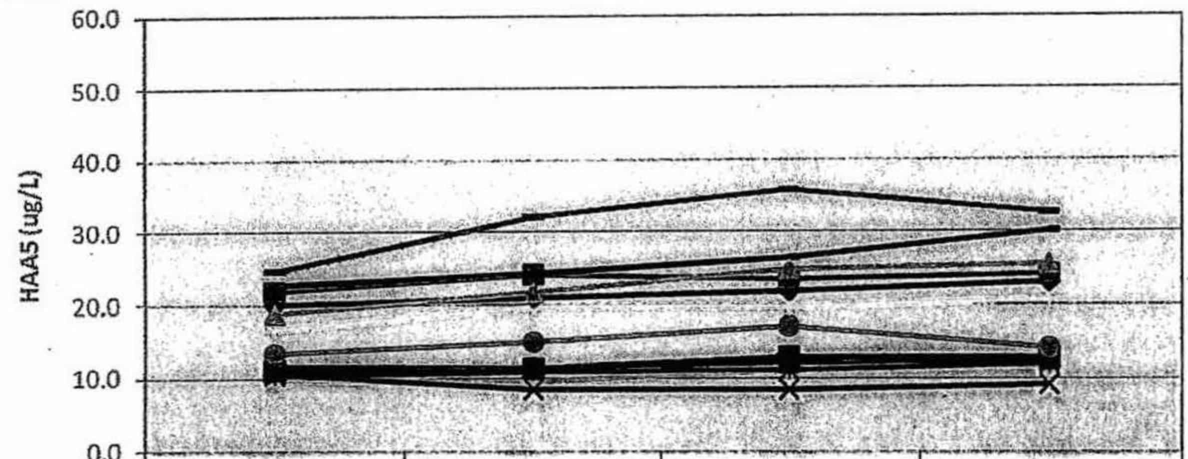
Figure 12. LWC HAA5 formation during the 5-day mSDS testing



	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	LRAA
Day-0	42.5	22.4	11.1	10.8	12.8	40.0	14.4	55.0	14.9	16.0	18.4	20.4	23.2
Day-1	55.6	31.4	14.6	16.7	19.8	66.0	27.0	89.6	26.4	27.5	24.6	26.5	35.5
Day-3	77.9	35.5	17.9	13.9	24.0	77.0	27.0	100.6	37.6	33.5	30.0	39.3	42.9
Day-5	86.8	41.7	19.1	14.7	29.0	86.1	30.0	101.5	42.0	35.1	30.5	40.2	46.4
MCL	60	60	60	60	60	60	60	60	60	60	60	60	60

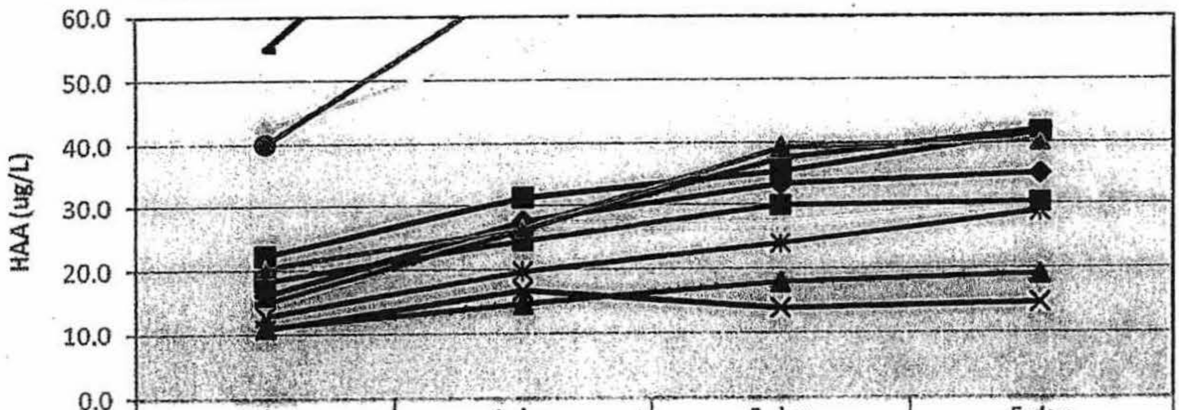
Figure 13. HCWD#2 HAA5 formation during the 5-day mSDS testing

Figures 14 through 16 demonstrate HAA5 formation kinetics. Once again, LWC water HAA5 levels remain constant in CHFP clear-well and distribution sites. In contrast, HCWD#2 HAA5 levels increase as the water travels in the distribution system as long as there are chlorine residuals. On average, HCWD#2 HAA5 levels increased by 100% in five days under mSDS conditions whereas LWC HAA5 only increased by 17% during the same period (See Figure 16).



	Day 0	Day 1	Day 3	Day 5
Nov	9.9	9.5	11.0	11.8
Dec	11.1	11.3	12.8	12.9
Jan	11.6	11.5	12.2	12.4
Feb	10.6	8.5	8.5	9.1
Mar	10.3	10.9	11.1	12.0
Apr	13.3	15.0	17.0	14.1
May	16.8	19.7	19.7	20.7
June	22.8	24.4	26.5	30.2
July	24.7	32.1	35.8	32.6
Aug	20.0	20.9	21.8	23.1
Sept	21.9	24.1	23.4	24.1
Oct	18.9	21.7	24.8	25.6

Figure 14. LWC HAA5 formation kinetics



	0-day	1-day	3-day	5-day
Nov	42.5	55.6	77.9	86.8
Dec	22.4	31.4	35.5	41.7
Jan	11.1	14.6	17.9	19.1
Feb	10.8	16.7	13.9	14.7
Mar	12.8	19.8	24.0	29.0
Apr	40.0	66.0	77.0	86.1
May	14.4	27.0	27.0	30.0
June	55.0	89.6	100.6	101.5
July	14.9	26.4	37.6	42.0
Aug	16.0	27.5	33.5	35.1
Sept	18.4	24.6	30.0	30.5
Oct	20.4	26.5	39.3	40.2

Figure 15. HCWD#2 HAA5 formation kinetics

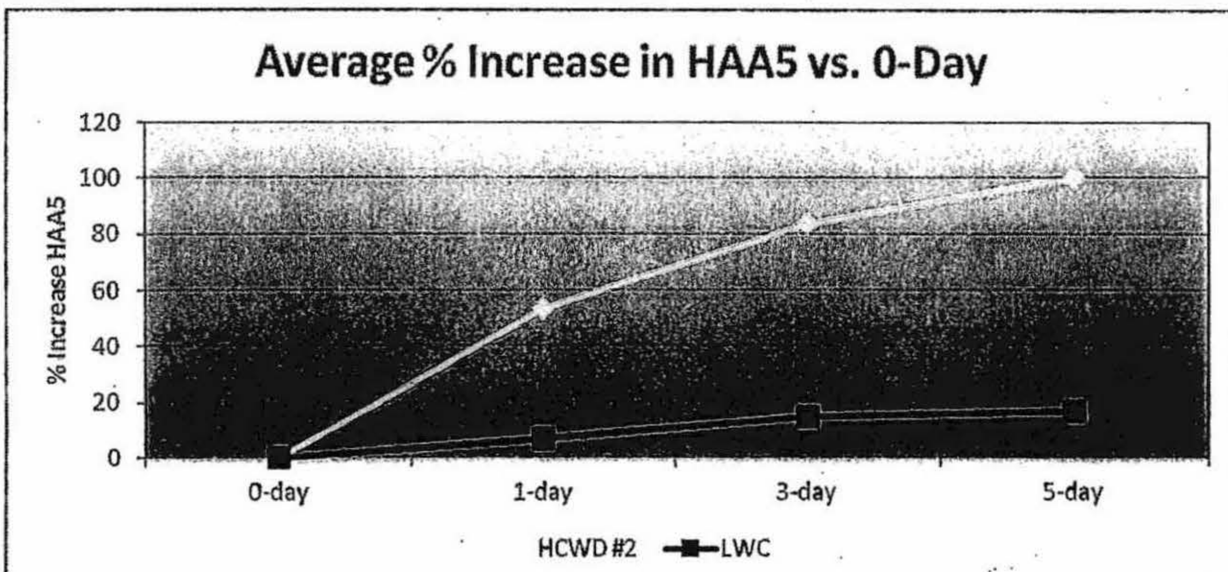


Figure 16. Comparison of yearly average HAA5 profiles for LWC and HCWD#2 under mSDS conditions

3.3.4 Summary of mSDS Testing

The mSDS testing results indicate that LWC has no difficulty to meet the strict Stage 2 D/DBPR regulation in 2012. The highest 5-day TTHM level is 39 µg/L which is <50% of 80 µg/L. This conclusion is in agreement with full-scale DBP monitoring data. More importantly, LWC customers can expect to have the same safe high quality water since the DBP levels remain little change in the whole distribution system.

The mSDS data also indicate that both THMs and HAAs continue to form after the free-chlorine containing water leaves the plant and travels in the distribution system. On average, HCWD#2 TTHM levels increases by 175% and HAA5 levels increases by 100% in five days after chlorination whereas LWC TTHM and HAA5 levels increases by less than 20% during the same period after initial chloramination.

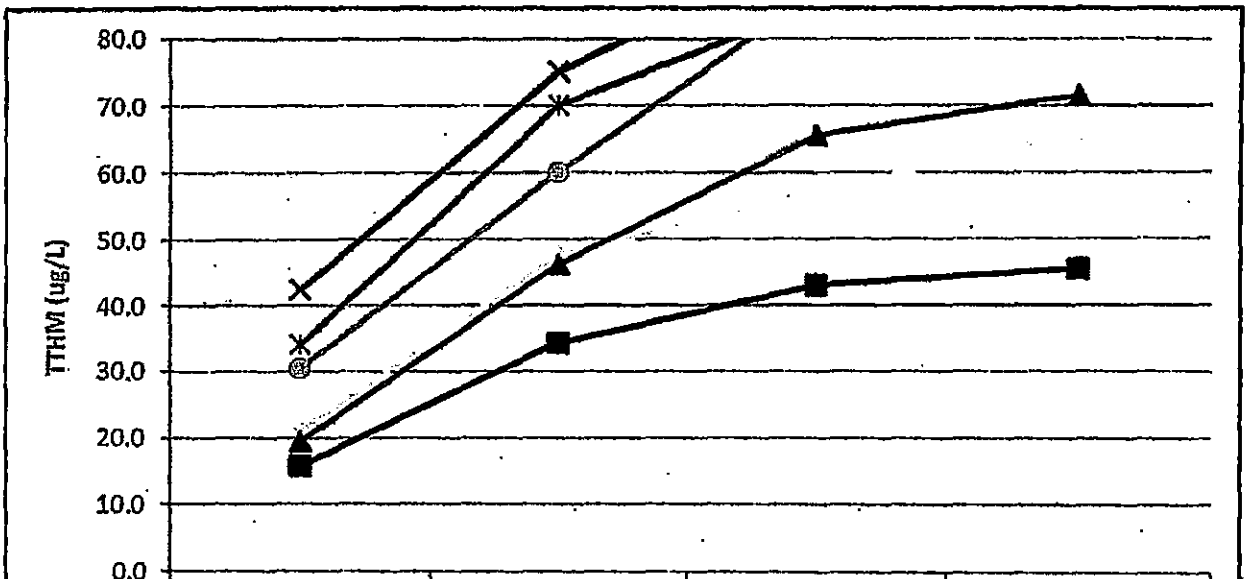
In addition, HAA5 can be a challenging issue for HCWD#2. For example, the 3-day and 5-day HAA5 RAA are 43 and 46 µg/L, respectively. This can be interpreted that any locations in HCWD#2 distribution system with a 3-day and 5-day residence time, customers can expose to relatively high HAA5 water.

3.4 Breakpoint and Chloramine Conversion Testing

The conversion test was conducted to understand DBP formation and reaction kinetics after breakpoint conversion for LWC water and after chloramine conversion for HCWD#2 water.

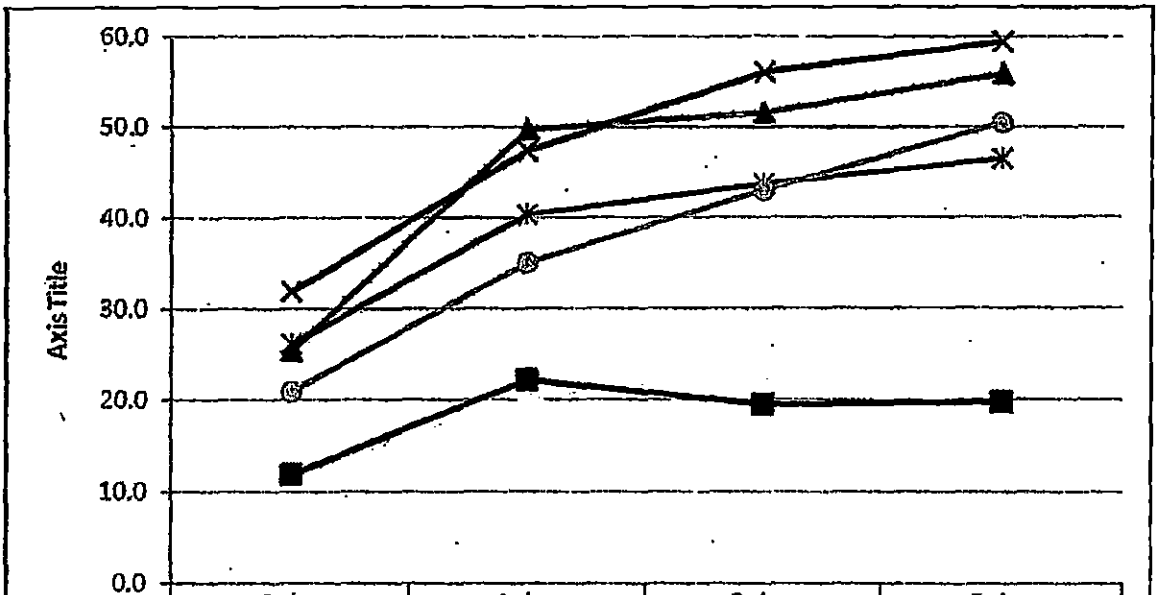
3.4.1 Breakpoint Conversion Testing

The LWC water was collected from the MRT site and spiked with a hypochlorite solution for a target chlorine residual of 0.5-1.0 mg/L on day 5.



	0-day	1-day	3-day	5-day
Dec	21.1	47.6	57.0	66.0
Feb	15.7	34.3	42.9	45.5
May	19.4	46.2	65.8	71.8
July	42.5	75.2	93.7	109.8
Sept	34.2	70.1	85.3	94.5
Oct	30.4	60.2	87.4	87.3

Figure 17. LWC water breakpoint convention-TTHM formation kinetics

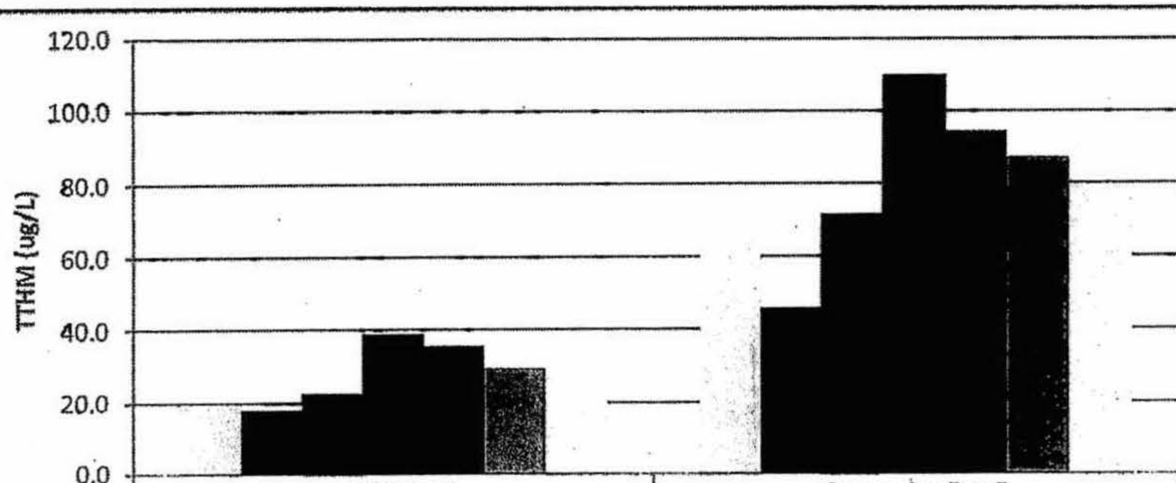


	0-day	1-day	3-day	5-day
Dec	12.1	20.0	23.0	26.6
Feb	11.8	22.1	19.5	19.7
May	25.3	49.7	51.6	55.9
July	31.8	47.4	56.1	59.5
Sept	26.1	40.3	43.7	46.5
Oct	20.8	35.0	43.0	50.5

Figure 18. LWC water breakpoint convention-HAA5 formation kinetics

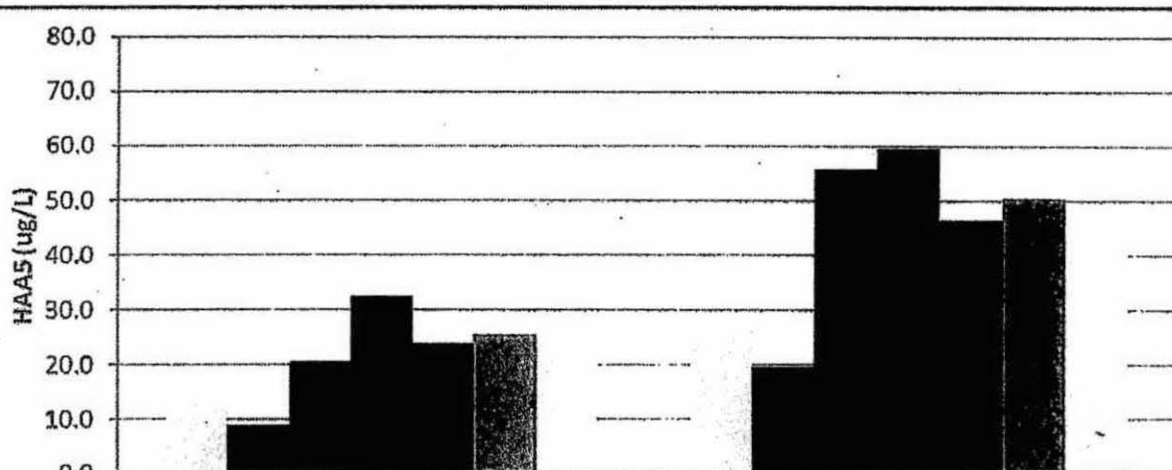
Figures 17 and 18 indicate that a significant amount of DBPs are formed when LWC water is converted to free chlorine. TTHM level could reach up to 110 ppb.

On average, LWC THM formation triples while HAA formation doubles after break-point chlorination (Figures 19 and 20). TTHM can exceed or draw near to regulatory MCL's after break-point conversion for LWC water.



	mSDS Day5	Conversion Day 5
Dec	18.5	66.0
Feb	18.0	45.5
May	22.6	71.8
July	39.0	109.8
Sept	35.7	94.5
Oct	29.8	87.3
Avg	27.3	79.2

Figure 19. LWC water breakpoint conversion-TTHM



	mSDS Day 5	Conversion Day 5
Dec	12.9	26.6
Feb	9.1	19.7
May	20.7	55.9
July	32.6	59.5
Sept	24.1	46.5
Oct	25.6	50.5
Avg	20.8	43.1

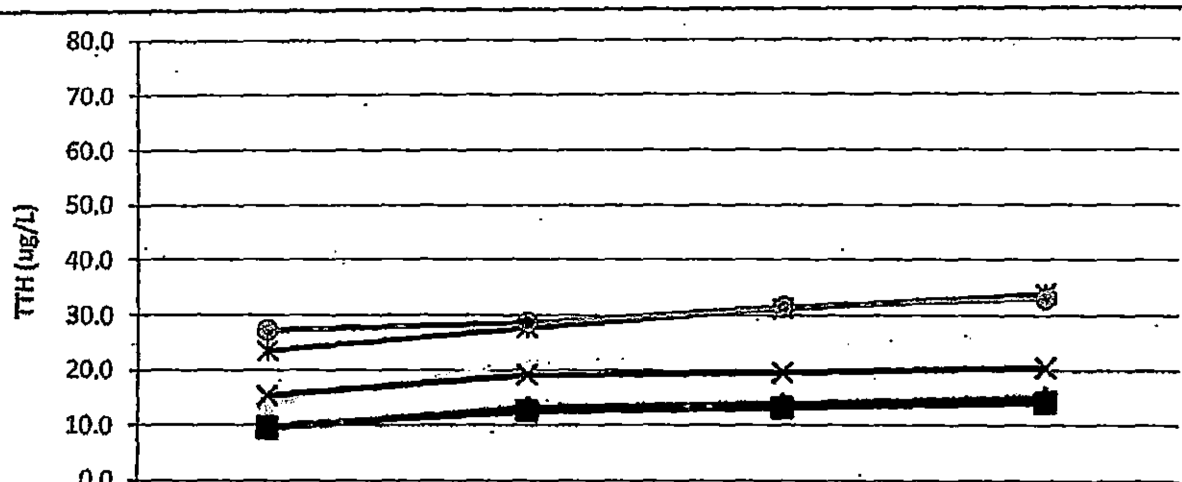
Figure 20. LWC water breakpoint conversion-HAA5

3.4.2 Chloramine Conversion Testing

Hardin County water was collected at the EPDS and spike with ammonia for 3:1 chlorine to ammonia ratio. This spike was based on the free chlorine residual of the finished water at the time of collection.

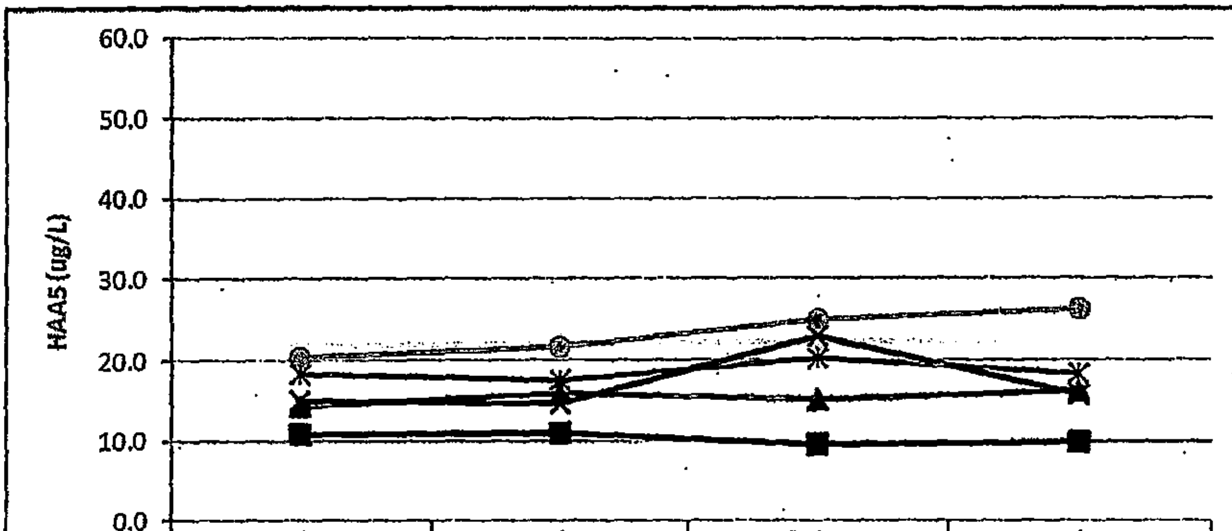
Figures 21 and 22 indicate that DBP formation kinetics slow down significantly after HCWD#1 water is disinfected with combined chlorine instead of free chlorine.

Figure 23 and 24 demonstrate that HCWD#2 observes a substantial decrease in DBP formation when converted to chloramines at the EPDS versus the free chlorine residual of the mSDS test. HCWD#2 DBP formation halves after the conversion to chloramine.



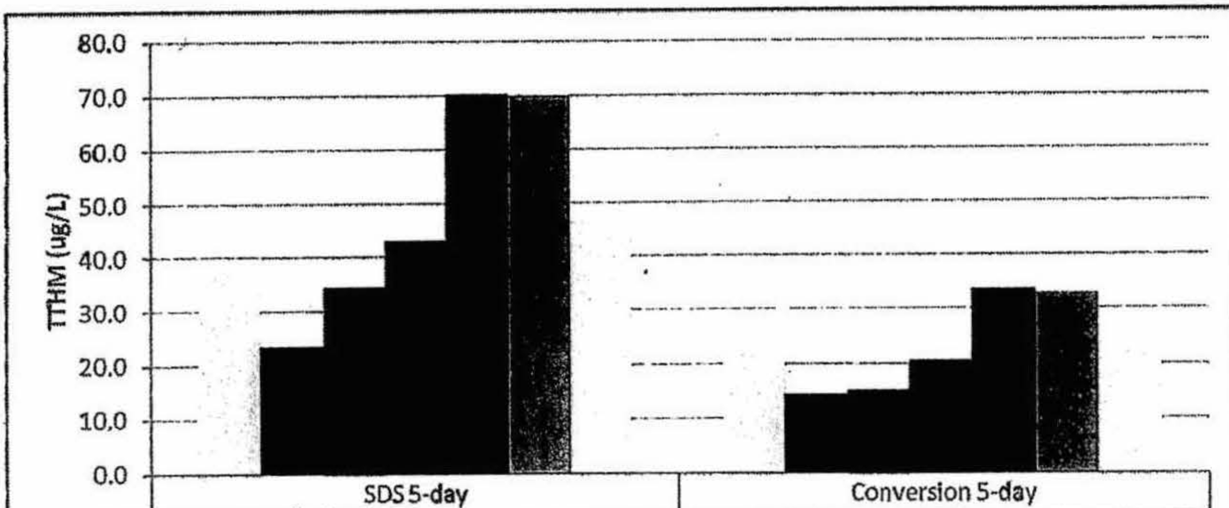
	0-day	1-day	3-day	5-day
Dec	13.7	21.5	23.5	27.0
Feb	9.6	12.5	13.3	14.2
May	9.5	13.3	14.0	15.0
July	15.3	19.0	19.5	20.5
Sept	23.5	27.8	31.2	33.8
Oct	27.2	28.6	31.5	33.1

Figure 21. HCWD#2 water breakpoint conversion-TTHM formation kinetics



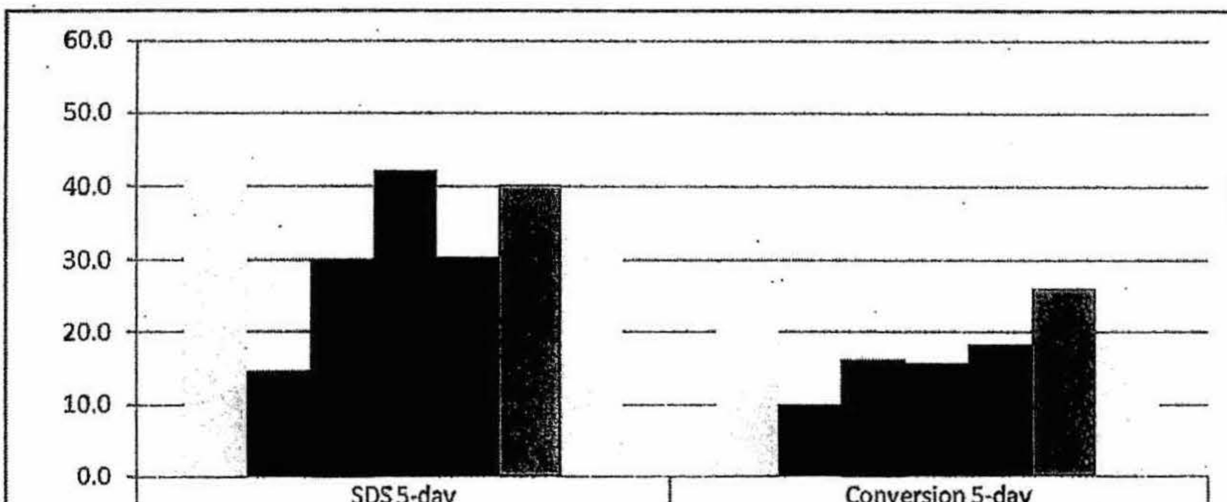
	0-day	1-day	3-day	5-day
Dec	21.8	22.1	22.3	22.5
Feb	10.8	11.0	9.6	9.8
May	14.4	15.9	15.1	16.2
July	14.9	14.7	23.0	15.8
Sept	18.4	17.6	20.2	18.3
Oct	20.4	21.7	25.1	26.3

Figure 22. HCWD#2 water breakpoint conversion-HAA5 formation kinetics



	SDS 5-day	Conversion 5-day
Dec	38.2	27.0
Feb	23.6	14.2
May	34.4	15.0
July	43.0	20.5
Sept	70.4	33.8
Oct	69.9	33.1
Avg	46.6	23.9

Figure 23. HCWD#2 water breakpoint conversion-TTHM



	SDS 5-day	Conversion 5-day
Dec	41.7	22.5
Feb	14.7	9.8
May	30.0	16.2
July	42.0	15.8
Sept	30.5	18.3
Oct	40.2	26.3
Avg	33.2	18.2

Figure 24. HCWD#2 water breakpoint conversion-HAA5

3.5 Modified UFC Testing

To characterize DBP formation potential and precursors under uniform conditions, two rounds of UFC tests were performed in March and August of 2011, respectively.

The overall DBP formation profiles under UFC conditions for both HCWD#2 and LWC are illustrated in Figure 25. It can be seen that LWC water has higher DBP formation for both THMs and HAAs under UFC conditions. In other words, without chloramination, LWC could have even worse DBP formation issues than HCWD#2.

Specific yields of DBP (per unit of DOC) under UFC conditions are also shown in Figure 26. Again, even the difference is reduced after normalized to DOC, LWC water still has higher DBP formation, indicating that LWC water is more active than HCWD#2 in producing DBPs under chlorinated conditions. This result also provides a theoretical support on why breakpoint conversion from LWC water will not be a good option for meeting HCWD#2 water quality goals.

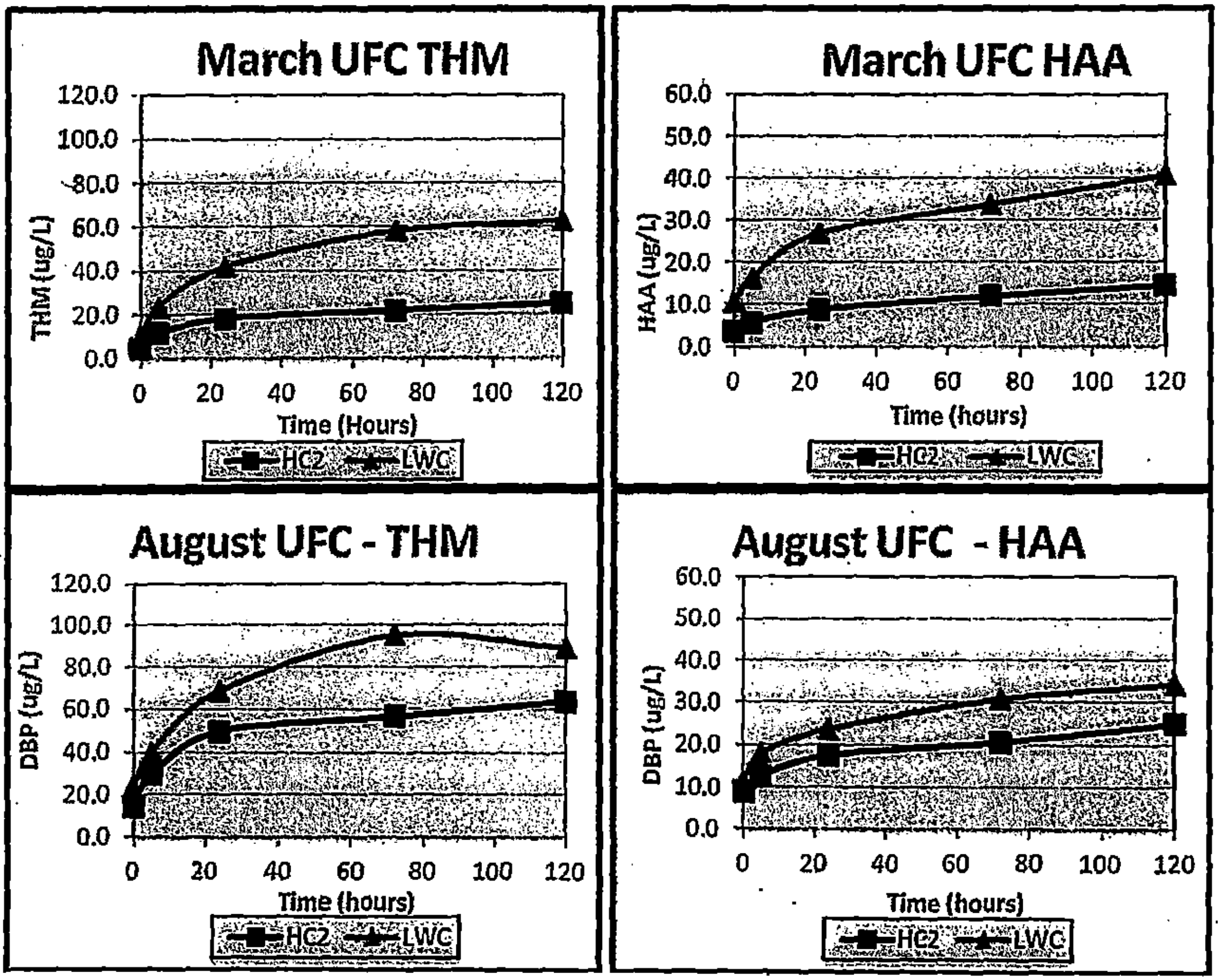


Figure 25. DBP formation profiles under UFC conditions

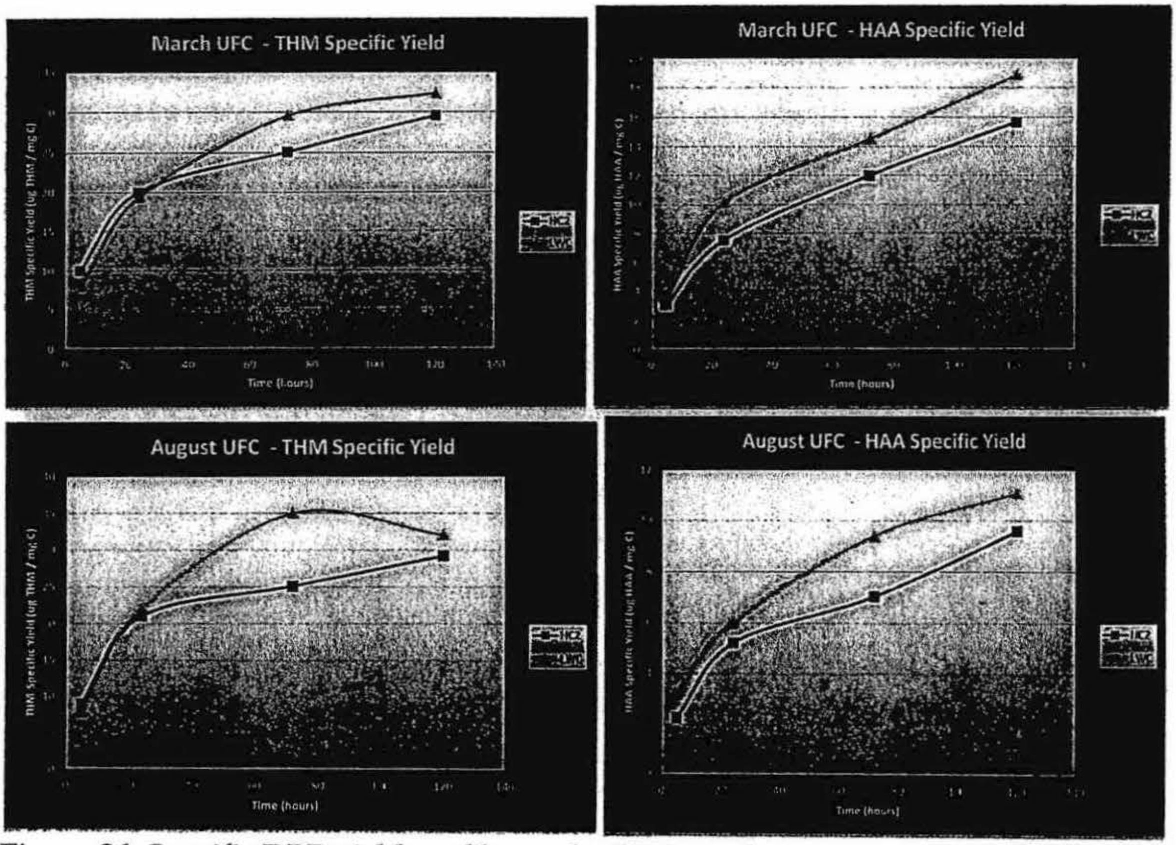


Figure 26. Specific DBP yield profiles under UFC conditions

Section 4 Conclusion and Recommendation

4.1 Recommended Process

The comprehensive DBP assessment study has achieved the objectives of 1). Understanding DBP formation potentials for the two waters under various conditions; and 2). Evaluating feasibility of breakpoint conversion or chloramines conversion. The project includes four parts of studies are proposed: 1). Full-scale DBP monitoring; 2). Modified simulated distribution system (mSDS) testing; 3). Breakpoint and chloramine conversion testing; and 4). Modified uniform formation conditions (mUFC) testing.

- The LWC currently produces excellent quality drinking water meeting all current and proposed future regulations for potable water quality. The water is also aesthetically pleasing as evident from the LWC winning the "Best Tap Water in America" taste test in 2008. Water quality at CHFP will be further improved by either ozonation or river bank filtration (RBF) which is being evaluated.

- The full-scale DBP results indicate that LWC has no difficulty to meet the strict Stage 2 D/DBPR regulation in 2012. The data also suggest that HCWD#2 face challenges to meet HAA5 LRAA requirements.

- The mSDS data indicate that both THMs and HAAs continue to form after the free-chlorine-containing water leaves the plant and travels in the distribution system. In addition, HAA5 can be a challenging issue for HCWD#2. For example, the 3-day and 5-day HAA5 RAA are 43 and 46 ppb, respectively.

- The breakpoint conversion testing results indicate that LWC THM formation triples while HAA formation doubles after break-point chlorination. On the other hand, HCWD#2 observes a substantial decrease in DBP formation when converted to chloramines at the EPDS versus the free chlorine residual of the mSDS test. HCWD#2 DBP formation halves after conversion to chloramine. The chloramine conversion option will also provide a more consistent water quality with respect to DBPs.

It is concluded and recommended that a combined chlorine application is practiced at both LWC and HCWD#2.

4.2 Future Work

Blending study is still needed to finalize this project.

APPENDIX 2

HCWDs AND LWC WATER BLENDING STUDY

HCWDs & LWC Water Blending Study

April 2013

Hardin County 1 Water District

"Serving Hardin County Since 1952"

LOUISVILLE WATER

since 1854

Objectives

- Identify proper HCWD chloramination conditions
- Evaluate water quality impacts (other than chlorinated DBPs) after chloramine conversion at HCWDs and blending of LWC and converted HCWD waters
  - T&O
  - Scale/corrosion
  - Discolored water
  - Nitrification potential
  - Unregulated N-DBPs

mSDS Experimental Protocol

- Pretreatment of HCWD water (2 days before water blending)
  - Collect each HCWD water at EPDS
  - Adjust two initial Cl_2 residual levels to 2 & 3 mg/L
  - Increase pH to 7.5 & 8.0 for HC1 and as is & 8.0 for HC2.
  - Conduct chloramine conversion with NH_3 application at Cl_2:NH_3 ratio of 3:1
  - Hold the converted water for two days under mSDS conditions for HC waters.
- Blending test (Day 0-Day 5)
  - Collect LWC water at Lebanon Junction (MRT) site
  - Blend LWC & converted HCWD waters at % ratio of 25/75, 50/50 & 75/25 and start mSDS test
  - Perform scheduled analysis on Day 0, 1,3, & 5.

Three Rounds of mSDS Testing

- Cover both summer and winter conditions
- Two sampling plans for HC#2 due to the high Cl2 during Round 2

Round	Conversion Date for HC1	Conversion Date for HC2	Incubation Temperature F
1	June [illegible], 2012	July [illegible], 2012	~70
2	September [illegible], 2012	September [illegible], 2012	~70
3	February 6, 2013	February 19, 2013	~50

LWC & HCWD#1 mSDS Blending Test

(All sampling events)

Objective	To study WQ impacts with blending the waters of HCWD#1 and LWC.								
Test ID	1	2	3	4	5	6	7	8	9
Water	LWC	HC1	HC1	HC1	50% HC1	50% HC1	25% HC1	50% HC1	75% HC1
Sample Location	LJ	EPDS			Mixture: LJ & Spiked HC1(#2)	Mixture: LJ & Spiked HC1(#4)	Mixture: LJ & Spiked HC1(#3)		
Initial Residual (ppm)	Real (2.5-3)	≥2.0	3.0	≥2.0	Real		Real		
Spike Volume	NA	Cl2: NH3 = 3:1			N/A		N/A		
pH (SU)	Real (~8.5)	Raise to 7.5 by NaOH if lower; otherwise real		Raise to 8	Real		Real		
Temperature (C)	System average				System average		System average		
Test Frequency	Every 2 months								
Sample interval	Raw, 0, 6h, 1d, 3d, 5d				0, 6h, 1d, 3d, 5d		0, 6h, 1d, 3d, 5d		
Notes	Record time, pH, residual, temp and plant flow when all samples are taken.								
Major Parameters	Turbidity, T&O, Calcium, Li, Mn, Fe, Cl2/NH3 species, NDMA								

LWC & HCWD#2 mSDS Blending Test

(Case I: July 2012 & Feb. 2013)

Objective	To study WQ impacts with blending the waters of HCWD#2 and LWC.								
Test ID	1	2	3	4	5	6	7	8	9
Water	LWC	HC2	HC2	25% HC2	50% HC2	75% HC2	25% HC2	50% HC2	75% HC2
Sample Location	LJ	EPDS		Mixture: LJ & Spiked HC2(#2)			Mixture: LJ & Spiked HC2(#3)		
Initial Residual (ppm)	Real	≥2.0	3.0	Real			Real		
Spike Volume	NA	Cl2: NH3 = 3:1		N/A			N/A		
pH (SU)	Real	Raise to 7.5 by NaOH if lower; otherwise real		Real			Real		
Temperature (C)	System average			System average			System average		
Test Frequency	Every 2 months			Every 2 months			Every 2 months		
Sample interval	Raw, 0, 6h, 1d, 3d, 5d			0, 6h, 1d, 3d, 5d			0, 6h, 1d, 3d, 5d		
Notes	Record time, pH, residual, temp and plant flow when all samples are taken.								
Major Parameters	Turbidity, T&O, Calcium, LI, Mn, Fe, Cl2/NH3 species, NDMA								

LWC & HCWD#2 mSDS Blending Test

(Case II: Sep. 2012)

Objective	To study WQ impacts with blending the waters of HCWD#2 and LWC.								
Test ID	1	2	[redacted]	4	5	6	7	8	9
Water	LWC	HC2	[redacted]	25% HC2	50% HC2	75% HC2	25% HC2	50% HC2	75% HC2
Sample Location	LJ	EPDS		Mixture: LJ & Spiked HC2(#2)			Mixture: LJ & Spiked HC2(#3)		
Initial Residual (ppm)	Real	Real if ≥2.5		Real			Real		
Spike Volume	NA	Cl2: NH3 = 3:1		N/A			N/A		
pH (SU)	Real	Raise to 7.5 by NaOH if lower; otherwise real	Raise to 8	Real			Real		
Temperature (C)	System average			System average			System average		
Test Frequency	Every 2 months			Every 2 months			Every 2 months		
Sample interval	Raw, 0, 6h, 1d, 3d, 5d			0, 6h, 1d, 3d, 5d			0, 6h, 1d, 3d, 5d		
Notes	Record time, pH, residual, temp and plant flow when all samples are taken.								
Major Parameters	Turbidity, T&O, Calcium, LI, Mn, Fe, Cl2/NH3 species, NDMA								

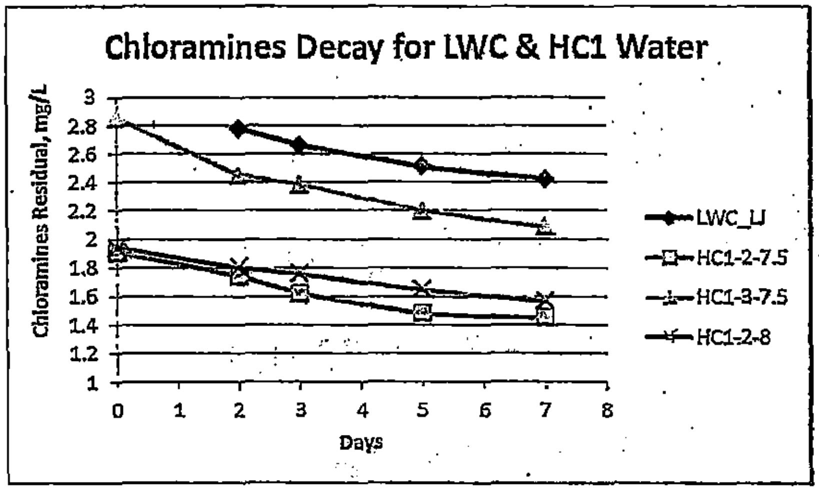
Testing Parameters & Schedule

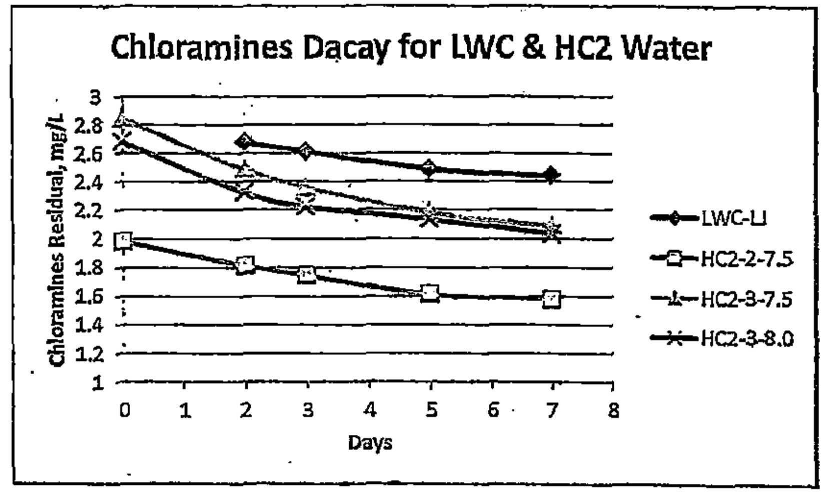
Free Cl2					
Total Cl2					
Dichloramine					
Monochloramine					
NH3-N (mg/L)					
Free Nitrogen					
UV 254 (cm-1)					
DOC (mg/L)					
Alkalinity (mg/L)					
Hardness (mg/L)					
Calcium					
Cond. (uS/cm)					
Turbidity					
T & O panel					
Total Fe					
Disolved Fe					
Total Mn					
Disolved Mn					
Cl^-					
SO_4^{2-}					
NDMA					

Outline of Findings

- Chloramines decay profiles
  - pH
  - Chlorine dose
- Chemical stability
  - Langelier Index
  - Chloride/Sulfate Mass Ratio
  - Discolored water
- Taste & odor
- Nitrification control
- NDMA formation and control

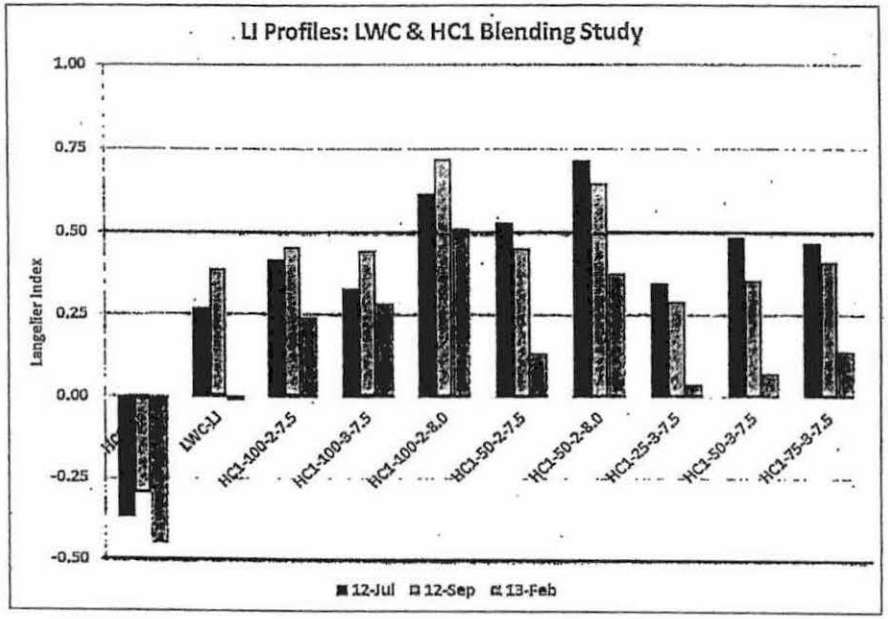
Chloramination Decay

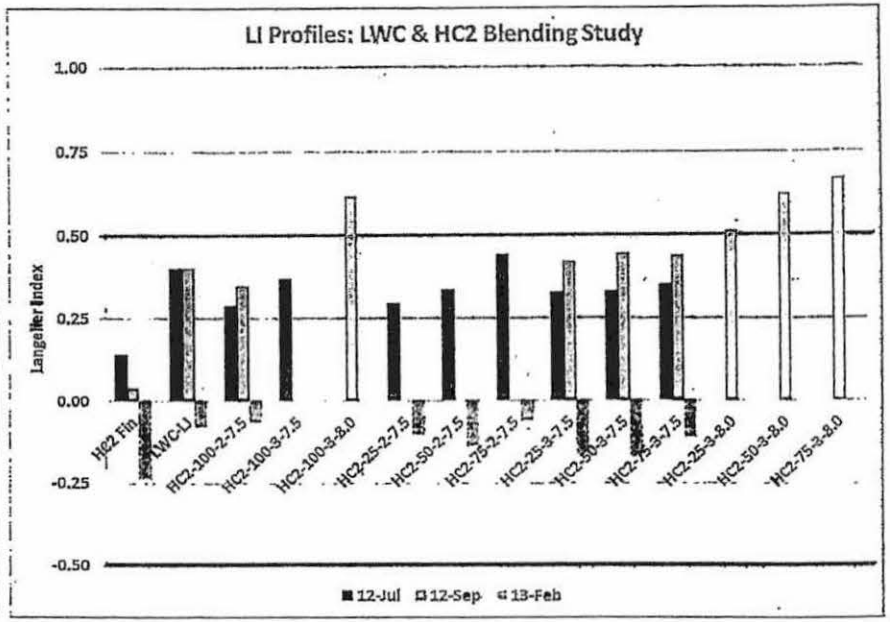




- pH effect: chloramines decay increases with pH decrease (~0.1 mg/L between 7.5-8). pH 7.5 is still acceptable, but a higher pH is recommended (e.g., 7.8)
- Dose effect: more decay occurs with higher chloramine doses. A target dose should balance the regulatory requirements (0.5-4 mg/L) and DS residual target for nitrification control (>2 mg/L).
- The extent of chloramine decay for all blended waters were similar and within the range of 0.3-0.5mg/L through the 5 day mSDS tests

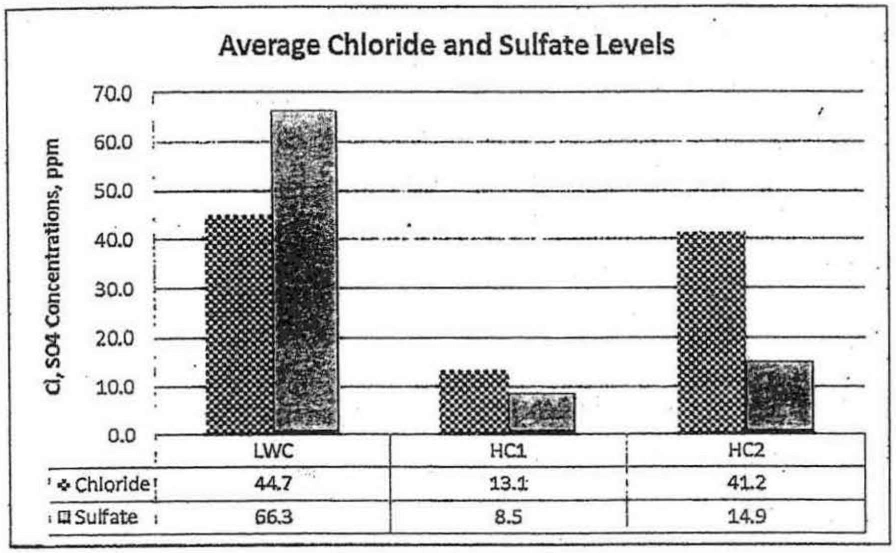
Chemical Stability: Scale & Corrosion

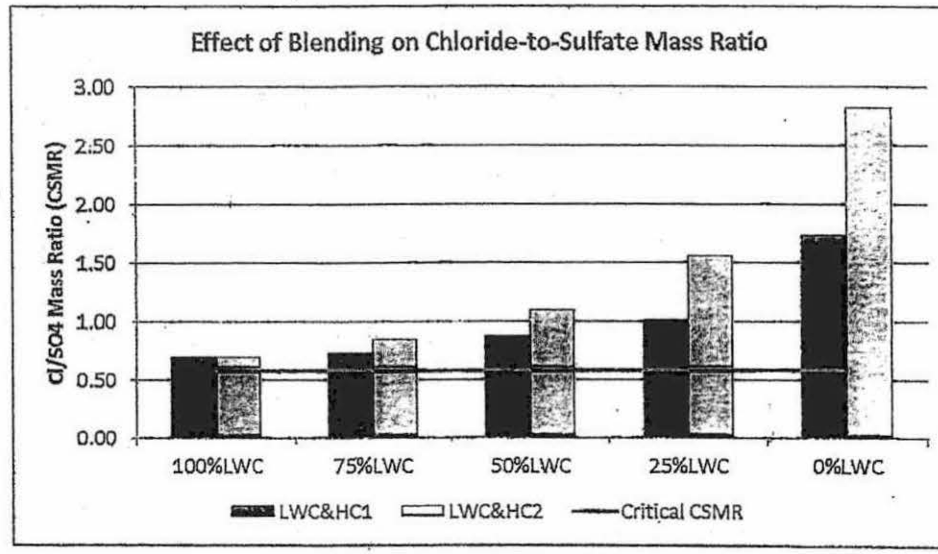




- LWC CHFP water is stable with ideally slight positive LI (0 to 0.5)
- Current HC1 finished water is also generally stable but on slightly corrosive side (average LI: -0.3 to -0.5) with a pH lower than desired for stable chloramination (pH ~7.1). After the increase in pH to 7.5, the LI level is raised to a more stable & slightly positive side (LI: 0-0.5). Blending pH 7.5 HC1 water with LWC water also produce stable water in terms of LI levels.
- The HC2 finished water is very stable in terms of LI level and is qualified for chloramine conversion without pH adjustment (~ currently 7.6).
- Further increasing the pH to 8.0 for either HCWD water may still be OK with slight scale forming issue (likely mixing related) but more stable chloramines residual.
- Blending LWC water with either HCWD water also produce stable water in terms of LI levels.

Chemical Stability: Chloride/Sulfate Mass Ratio





- There are large differences in chloride and sulfate concentrations as well as their ratios among the three waters .

- Chloride-to-sulfate mass ratio (CSMR) has been observed to have a significant impact on lead corrosion and higher CSMR tends to increase lead leaching from lead solder (Edward et al.)

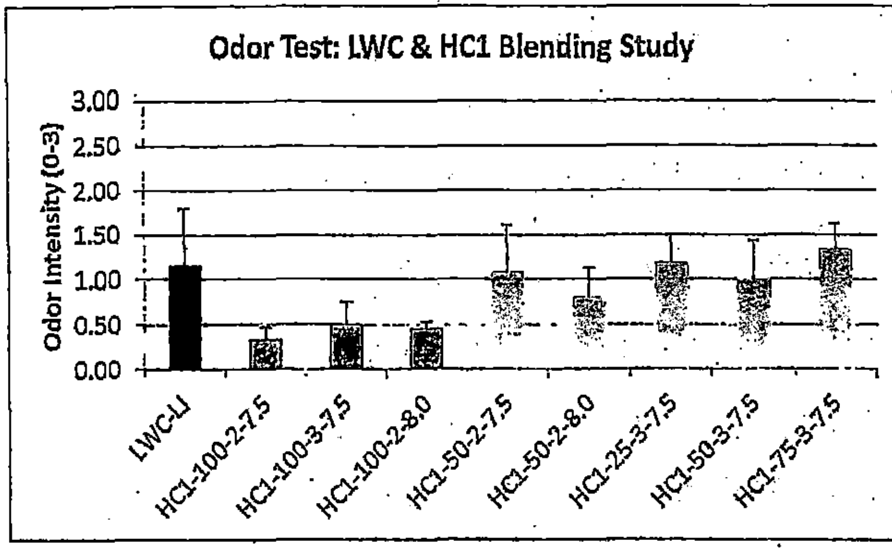
- CSMR is in the order of HCWD2>HCWD1>LWC for the three finished/DS water. Therefore, the blending with LWC water will likely to have a positive effect on both HCWDs in terms of reducing the lead-leaching potential based on the lower CSMR.

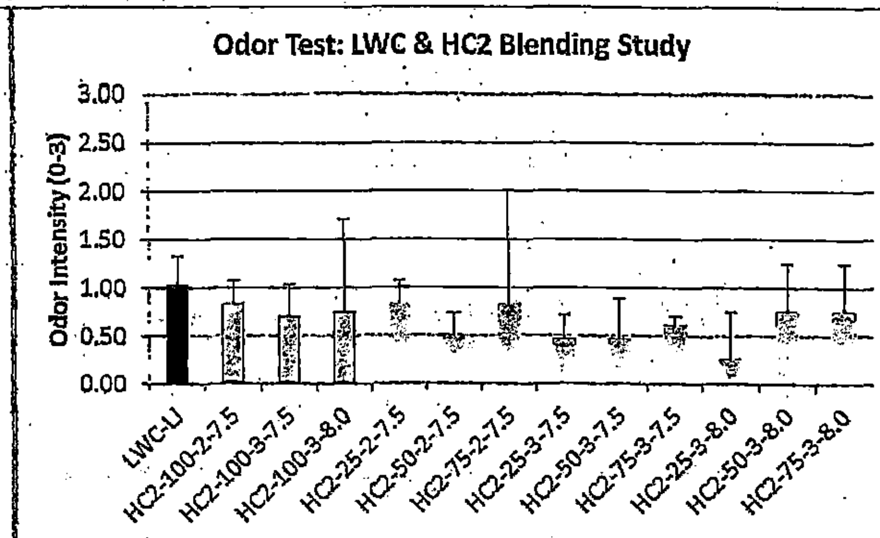
Discolored Water

- The risk of discolored water due to blending LWC and HC waters is low because
  - Iron and manganese levels in all waters have been typically below detection limit (Fe< 0.02 ppm; Mn<0.005 ppm). The only exception was for July HC1 samples, in which the total Mn was still below 0.02ppm, a threshold for potential black water issue.
  - After the chloramines conversion, the treatment process for both HCWDs will continue to have a free chlorine residual through the filters, which is very effective in Fe/Mn removal.
  - Additional positive changes will occur in terms of corrosion control after the conversion, pH adjustment and water blending as discussed earlier.

Taste & Odor

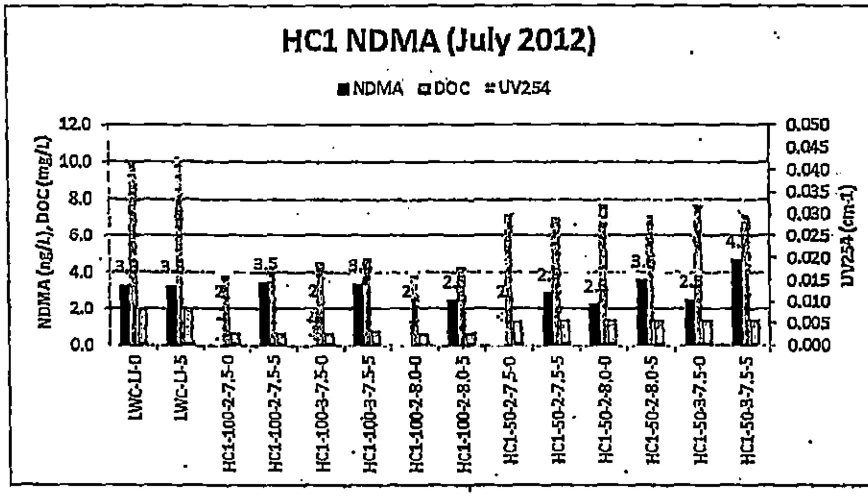
<1 = Below Detection; 1 = Slight; 2 = Moderate; 3 = Strong

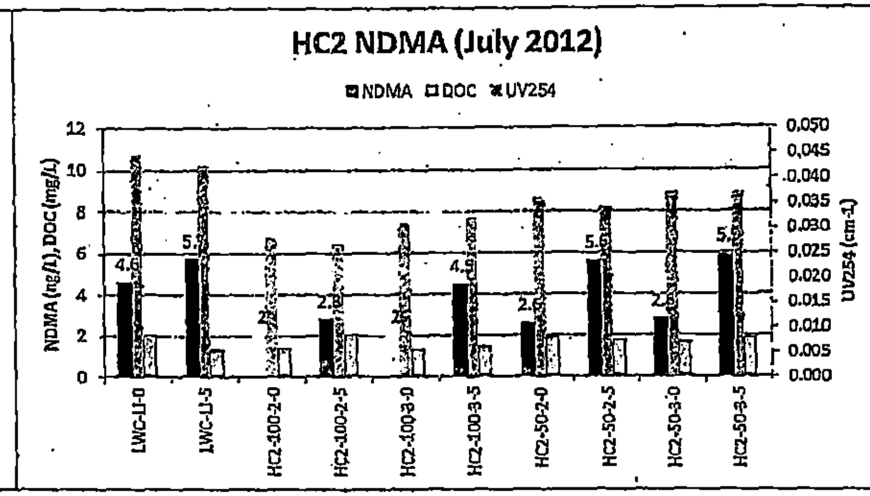


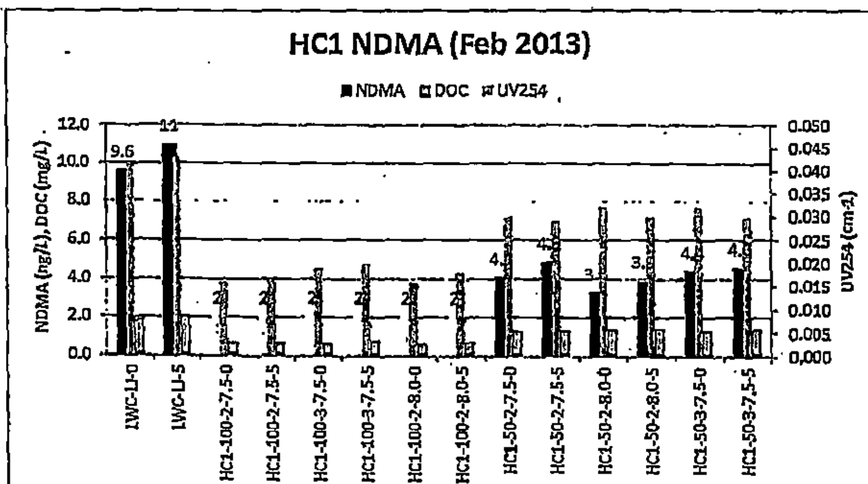


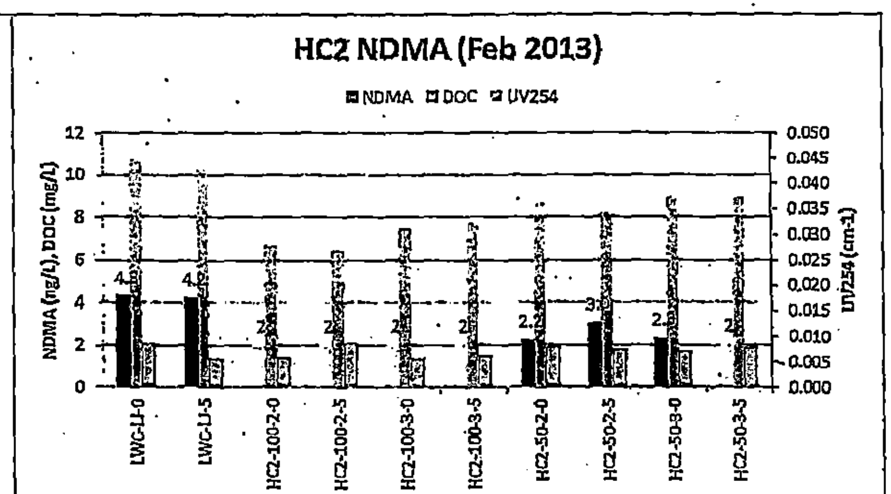
- No taste issue was detected for LWC, HC1 and HC2 waters as well as any of the blended waters in this study.
- There was a minor musty odor from some LWC & HC2 waters for July and September 2012 samples and some of the blended waters, which may be related to algal activities in the source water during the season.
- The slight odor should not lead to any significant customer complaints as evident from the fact that the customer complaint level for LWC has been under noise level throughout this period.

NDMA Formation









NDMA Formation and Control

- NDMA can be formed through chloramines reacting with precursors, which may come from 1) source water (wastewater influenced) 2) water treatment chemicals (amine based polymers, e.g., PolyDADMAC)

- Under summer conditions, all three waters have NDMA formation potential above the detection of 2 ppt. But the overall NDMA level was still considered moderate to low during the summer conditions (<5 ppt). The precursors were primarily from the source waters.

- During winter seasons, the NDMA level in LWC water could exceed 10 ppt due to the use of PolyDADMAC for high turbidity events. No NDMA was detected in either HC water. The NDMA level for 1:1 blended water were also lower than 5 ppt.

NDMA Formation and Control (continued)

- NDMA level tends to increase with time and more so during summers than winters.
- LWC is currently working with WRF to evaluate the occurrence of NDMA and develop practical control strategies for us, including managing pre-chlorination practice, optimizing PolyDADMAC doses and the use of alternative coagulants.
- The preliminary results are very promising and LWC should be able to resolve this emerging issue in the near future.

Nitrification Control

- Nitrification can be an potential issue and requires special attention
  - High water age (5-7 days for LWC LJ water and ~ 5 days for both HC MRT sites)
- Plant Treatment Strategy
  - Minimize free ammonia through managing Cl2:N ratio
  - Maintain sufficient chloramine residual (2.5-3 mg/L)

Temperature, F	Finished total Cl2 residual, mg/L	Finished Cl2/N ratio (Cl2/NH3)	Finished free NH3 goal, mg/L
< 55	2.5	3.9 (3.2)	~ 0.15
55 - 65	3.0	3.9 - 4.3 (3.2 - 3.5)	0.1-0.15
> 65	3.0	4.3 (3.5)	≤0.1

Nitrification Control (continued)

- Distribution System Strategies
  - Monitor and manage storage facility (tank cleaning, system flushing)
  - Reduce water age (temporary volume reduction, tank turnover, mixing improvement)
  - Chemical treatment
    - Low level chlorite application
    - Booster chloramination
    - Periodic switch to free chlorine

Summary and Preliminary Recommendations

- Recommended chloramination conditions
  - HCWD#1 to raise pH to 7.6-7.8 level by applying caustic soda.
  - No pH adjustment is need for HCWD#2
  - Target total Cl2 residual at EPDS for both HCWDs:
    - 2.5 mg/L (<55 F)
    - 3 mg/L (>55 F)
- Water blending impact assessment
  - No T&O issue due to blending of LWC and HC waters
  - Lower risk of corrosion and discolor water after the pH adjustment and blending
  - NDMA issue manageable
  - Comprehensive residual management plan is needed and LWC will provide supports

Summary Addendum

to

Preliminary

Engineering

Report

December 2013

SUMMARY ADDENDUM

TO

PRELIMINARY ENGINEERING REPORT

DATED December, 2013

FOR

Hardin County Water District No. 2
Supplemental Water Supply
(Name of Project)

APPLICANT CONTACT PERSON James Jefferies (Ext. 303)

APPLICANT PHONE NUMBER 270-737-1056

APPLICANT TAX IDENTIFICATION NUMBER (TIN)

ITEMS IN BOLD ITALIC PRINT ARE APPLICABLE TO SEWER SYSTEMS.

In order to avoid unnecessary delays in application processing, the applicant and its consulting engineer should prepare a summary of the preliminary report in accordance with this Guide.

Please complete the applicable sections of the Summary Addendum. ***Please note, if water and sewer revenue will both be taken as security for the loan, all user information and characteristics of both utility systems will be needed even though the project will benefit only one utility.***

Feasibility reviews and grant determinations may be processed more accurately and more rapidly if the Summary/Addendum is submitted simultaneously with the preliminary engineering report, or as soon thereafter as possible.

I. GENERAL

A. Proposed Project: Provide a brief description of the proposed project. In addition to this summary, the applicant/engineer should submit a project map of the service area.

This project consists of approximately 10 miles of 24-inch D.I. pipeline and one pump station. These facilities will connect to the Louisville Water Company (LWC) at the Bullitt/Hardin County line to provide an ultimate 10 MGD supplemental water supply. The initial LWC capability is 2 MGD with future planned reinforcements to supply the ultimate 10 MGD.

II. FACILITY CHARACTERISTICS OF EXISTING SEWER SYSTEM

A. Sewage Treatment:

1. Type ______________________________

2. Method of Sludge Disposal ______________________________

____

3. Cost per 1,000 gallons if sewage treatment is contracted:

$ ______________________________

4. Date Constructed ______________________________

B. Treatment Capacity of Sewage Treatment Plant ______________________________

C. Type of Sewage Collector System (Describe) ______________________________

____

____

D. Number and Capacity of Sewage Lift Stations ______________________________

____

E. Sewage Collection System:

Lineal Feet of Collector Lines, by size 6" ______________ *8"* ______________

10" ______________ *12"* ______________*, Larger* ______________

Date(s) Constructed ______________, ______________

F. Conditions of Existing System: Briefly describe the conditions and suitability for continued use of facility now owned by the applicant. Include any major renovation that will be needed within five to ten years.

____

____

____

III. FACILITY CHARACTERISTICS OF EXISTING WATER SYSTEM

A. Water Source: Describe adequacy of source (quality and quantity). Include an explanation of raw water source, raw water intake structure, treatment plant capacity, and current level of production (WTP). Also describe the adequacy of Water Purchase Contract if applicable.

See Page 3-A

____

____

If the applicant purchases water:

Seller(s):

1. Hardin County Water District No. 1 (emergency only)
2. ______________
3. ______________

Price/1,000 gallons:

1. $1.95
2. ______________
3. ______________

Present Estimated Market Value of Existing System: $ 50,000,000

B. Water Storage:

Type: Ground Storage Tank ______ Elevated Tank 8

Standpipe 1 Other ______

Number of Storage Structures ______

Total Storage Volume Capacity 5.9 MG

Date Storage Tank(s) Constructed 1963-2002

C. Water Distribution System:

Pipe Material PVC, AC, DT

Lineal Feet of Pipe: 3" Diameter ______ 4" 1,293,940

6" 1,159,300 8" 410,313

10" 28,000 12" 98,100

16" 23,800 20" 33,800

24" 97,700

Date(s) Water Lines Constructed 1968 to 2009

Number and Capacity of Pump Station(s) 1-680 GPM; 1-200 GPM; 1-3 MGD 1-600 GPM; 1-150 GPM; 1-6 MGD; H.S. 2 MGD; H.S. 8.1 MGD

D. Condition of Existing Water System:

Briefly describe the condition and suitability for continued use of facility now owned by the applicant. Include any major renovation that will be needed within five to ten years.

The system is maintained in excellent condition. After the proposed project, there are no major renovations envisioned within the next 5-10 years.

E. Percentage of Water Loss Existing System 15%

IV. EXISTING LONG-TERM INDEBTEDNESS

A. List of Bonds and Notes:

Date of Issue	Bond/Note Holder	Principal Balance	Payment Date	Bond Type Water/Sewer*	Amount on Deposit in Reserve Account
2002C Issue	Private	$800,000	Jan 1	100 % _____%	
2004A Issue	Private	$2,130,000	Jan 1	100 % _____%	
2005B Issue	Private	$1,365,000	Jan 1	100 % _____%	
2007A Issue	RD	$2,423,000	Jan 1	100 % _____%	
2000A Issue	Private	$ 5,280,000	Jan 1	100 % _____%	
2012 Issue	Private	$6,070,000	Jan 1	100 % _____%	

* If a combined issue, show attributable portion to each system.

B. Principal and Interest Payments: (Begin with Next Fiscal Year Payment)

		Payment Year 2014		Payment Year 2015		Payment Year 2016	
Date of Issue	Bond/Note Holder	Principal Payment	Interest Payment	Principal Payment	Interest Payment	Principal Payment	Interest Payment
2002C Issue	Private	405,000	7,594	-----	-----	-----	-----
2004A Issue	Private	125,000	74,926	125,000	70,708	135,000	66,158
2005B Issue	Private	80,000	51,250	85,000	47,868	85,000	44,383
2007A Issue	RD	32,000	95,080	33,000	93,780	34,000	92,440
2010A Issue	Private	215,000	171,344	220,000	166,994	225,000	162,122
2012 Issue	Private	180,000	162,625	185,000	158,975	190,000	155,225
TOTALS		1,037,000	562,819	648,000	538,325	669,000	520,328

V. EXISTING SHORT-TERM INDEBTEDNESS

A. List of All Short Term Debts: (Do Not Show Any Debt Listed in Paragraph IV Above)

Lender or Lessor	Date of Issue (Month & Year)	Principal Balance	Purpose (Water and/ or Sewer)	Payment Date	Principal & Interest Payment (P&I)	Date to Be Paid In Full

VI. LAND AND RIGHTS - EXISTING SYSTEM(S)

Number of Treatment Plant Sites:	Water 1	***Sewer***
Number of Storage Tank Sites	Water 9	***Sewer***
Number of Pump Stations:	Water 6	***Sewer***
Total Acreage:	Water 35 Acres	***Sewer*** ***Acres***
Purchase Price:	Water $56,500	***Sewer $***

VII. NUMBER OF EXISTING USERS

	Water	***Sewer***
Residential (In Town) *		
Residential (Out of Town) *	16,035	
Non-Residential (In Town)		
Non-Residential (Out of Town)	1,035	
Total	17,070	
Number of Total Potential Users Living in the Service Area	18,000	

*Note: Residential Users: Classify by type of user regardless of quantity of water used. This classification should include those meters serving individual rural residence.

VIII. CURRENT WATER AND SEWER CONNECTION FEES FOR EACH SIZE WATER METER CONNECTION

Meter Size	Water Connection Fee	*Sewer Connection Fee*
5/8" x 3/4"	$600	$
1 - Inch	$	$

IX. SEWER RATES - EXISTING SYSTEM

Percentage of Water Bill ________ % Minimum Charge $ ________________

Other: (If Charge Not Based on Water Bill) ______________________________

____

Date This Rate Went Into Effect ______________________________________

X. WATER RATES - EXISTING SYSTEM

Existing Rate Schedule: 5/8" x 3/4" Meter

First	2,000	Gallons @ $	18.50	Minimum.
Next	498,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.10	per 1,000 Gallons.

Date This Rate Went Into Effect ______________________________

If More Than One Rate Schedule, Please Include All Schedules.

SEE ADDITIONAL SCHEDULES

VIII. CURRENT WATER AND SEWER CONNECTION FEES FOR EACH SIZE WATER METER CONNECTION

Meter Size	Water Connection Fee	*Sewer Connection Fee*
5/8" x 3/4"	$600	*$*
1 - Inch	$	*$*

IX. SEWER RATES - EXISTING SYSTEM

Percentage of Water Bill _______ % Minimum Charge $ _______________

Other: (If Charge Not Based on Water Bill) _______________________

____

Date This Rate Went Into Effect _______________________________

X. WATER RATES - EXISTING SYSTEM

Existing Rate Schedule: 1" Meter

First	5,000	Gallons @ $	33.95	Minimum.
Next	495,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.10	per 1,000 Gallons.

Date This Rate Went Into Effect _______________________________

If More Than One Rate Schedule, Please Include All Schedules.

VIII. CURRENT WATER AND SEWER CONNECTION FEES FOR EACH SIZE WATER METER CONNECTION

Meter Size	Water Connection Fee	***Sewer Connection Fee***
5/8" x 3/4"	$600	*$*
1 - Inch	$	*$*

IX. SEWER RATES - EXISTING SYSTEM

Percentage of Water Bill ________ ***%*** ***Minimum Charge $*** ________________

Other: (If Charge Not Based on Water Bill) ____________________________

____

Date This Rate Went Into Effect ______________________________

X. WATER RATES - EXISTING SYSTEM

Existing Rate Schedule: 1 ½" Meter

First	10,000	Gallons @ $	59.70	Minimum.
Next	490,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.10	per 1,000 Gallons.

Date This Rate Went Into Effect ______________________________

If More Than One Rate Schedule, Please Include All Schedules.

VIII. CURRENT WATER AND SEWER CONNECTION FEES FOR EACH SIZE WATER METER CONNECTION

Meter Size	Water Connection Fee	***Sewer Connection Fee***
5/8" x 3/4"	$600	***$***
1 - Inch	$	***$***

IX. SEWER RATES - EXISTING SYSTEM

Percentage of Water Bill _______ % Minimum Charge $ _______

Other: (If Charge Not Based on Water Bill) _______

Date This Rate Went Into Effect _______

X. WATER RATES - EXISTING SYSTEM

Existing Rate Schedule: 2" Meter

First	20,000	Gallons @ $	111.20	Minimum.
Next	480,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.10	per 1,000 Gallons.

Date This Rate Went Into Effect _______

If More Than One Rate Schedule, Please Include All Schedules.

VIII. CURRENT WATER AND SEWER CONNECTION FEES FOR EACH SIZE WATER METER CONNECTION

Meter Size	Water Connection Fee	*Sewer Connection Fee*
5/8" x 3/4"	$600	$
1 - Inch	$	$

IX. SEWER RATES - EXISTING SYSTEM

Percentage of Water Bill ________ *%* *Minimum Charge $* ________________

Other: (If Charge Not Based on Water Bill) ________________________________

____

Date This Rate Went Into Effect ________________________________

X. WATER RATES - EXISTING SYSTEM

Existing Rate Schedule: 3" Meter

First	30,000	Gallons @ $	162.70	Minimum.
Next	470,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.10	per 1,000 Gallons.

Date This Rate Went Into Effect ________________________________

If More Than One Rate Schedule, Please Include All Schedules.

VIII. CURRENT WATER AND SEWER CONNECTION FEES FOR EACH SIZE WATER METER CONNECTION

Meter Size	Water Connection Fee	***Sewer Connection Fee***
5/8" x 3/4"	$600	***$***
1 - Inch	$	***$***

IX. SEWER RATES - EXISTING SYSTEM

Percentage of Water Bill ________ ***% Minimum Charge $*** ________________

Other: (If Charge Not Based on Water Bill) ________________________________

____

Date This Rate Went Into Effect ________________________________

X. WATER RATES - EXISTING SYSTEM

Existing Rate Schedule: 4'' Meter

First	50,000	Gallons @ $	265.70	Minimum.
Next	450,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.10	per 1,000 Gallons.

Date This Rate Went Into Effect ________________________________

If More Than One Rate Schedule, Please Include All Schedules.

VIII. CURRENT WATER AND SEWER CONNECTION FEES FOR EACH SIZE WATER METER CONNECTION

Meter Size	Water Connection Fee	***Sewer Connection Fee***
5/8" x 3/4"	$600	*$*
1 - Inch	$	*$*

IX. SEWER RATES - EXISTING SYSTEM

Percentage of Water Bill ________ ***% Minimum Charge $*** ________________

Other: (If Charge Not Based on Water Bill) ____________________________

____

Date This Rate Went Into Effect ____________________________

X. WATER RATES - EXISTING SYSTEM

Existing Rate Schedule: 6'' Meter

First	100,000	Gallons @ $	523.20	Minimum.
Next	400,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.10	per 1,000 Gallons.

Date This Rate Went Into Effect ____________________________

If More Than One Rate Schedule, Please Include All Schedules.

VIII. CURRENT WATER AND SEWER CONNECTION FEES FOR EACH SIZE WATER METER CONNECTION

Meter Size	Water Connection Fee	*Sewer Connection Fee*
5/8" x 3/4"	$600	$
1 - Inch	$	$

IX. SEWER RATES - EXISTING SYSTEM

Percentage of Water Bill ________ ***% Minimum Charge $*** ________________

Other: (If Charge Not Based on Water Bill) ________________________________

____

Date This Rate Went Into Effect ________________________________

X. WATER RATES - EXISTING SYSTEM

Existing Rate Schedule: 8" Meter

First	150,000	Gallons @ $	780.70	Minimum.
Next	350,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.10	per 1,000 Gallons.

Date This Rate Went Into Effect ________________________________

If More Than One Rate Schedule, Please Include All Schedules.

VIII. CURRENT WATER AND SEWER CONNECTION FEES FOR EACH SIZE WATER METER CONNECTION

Meter Size	Water Connection Fee	*Sewer Connection Fee*
5/8" x 3/4"	$600	*$*
1 - Inch	$	*$*

IX. SEWER RATES - EXISTING SYSTEM

Percentage of Water Bill ________ ***% Minimum Charge $*** ________________

Other: (If Charge Not Based on Water Bill) ________________________________

____

Date This Rate Went Into Effect ____

X. WATER RATES - EXISTING SYSTEM

Existing Rate Schedule: 10'' Meter

First	250,000	Gallons @ $	1,295.70	Minimum.
Next	250,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.10	per 1,000 Gallons.

Date This Rate Went Into Effect ________________________________

If More Than One Rate Schedule, Please Include All Schedules.

VIII. <u>CURRENT WATER AND SEWER CONNECTION FEES FOR EACH SIZE WATER METER CONNECTION</u>

Meter Size	Water Connection Fee	***Sewer Connection Fee***
5/8" x 3/4"	$600	*$*
1 - Inch	$	*$*

IX. SEWER RATES - EXISTING SYSTEM

Percentage of Water Bill ________ ***%*** ***Minimum Charge $*** ________________

Other: (If Charge Not Based on Water Bill) ______________________________

____

Date This Rate Went Into Effect ______________________________

X. WATER RATES - EXISTING SYSTEM

Existing Rate Schedule: 12" Meter

First	400,000	Gallons @ $	2,068.20	Minimum.
Next	100,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.10	per 1,000 Gallons.

Date This Rate Went Into Effect ______________________________

If More Than One Rate Schedule, Please Include All Schedules.

XI. ANALYSIS OF ACTUAL SEWER USAGE - EXISTING SYSTEM - 12 MONTH PERIOD

For Period ______________________ ***to*** ______________________ .

All Meter Sizes	*Monthly Sewer Usage*				*Average*	*Residential*		*Non-Residential*	
						No. of Users	*Usage (1000)*	*No. of Users*	*Usage (1000)*
	0	-	*2,000*	*Gallons*	*1,000*	____	____	____	____
	2,000	-	*3,000*	*Gallons*	*2,500*	____	____	____	____
	3,000	-	*4,000*	*Gallons*	*3,500*	____	____	____	____
	4,000	-	*5,000*	*Gallons*	*4,500*	____	____	____	____
	5,000	-	*6,000*	*Gallons*	*5,500*	____	____	____	____
	6,000	-	*7,000*	*Gallons*	*6,500*	____	____	____	____
	7,000	-	*8,000*	*Gallons*	*7,500*	____	____	____	____
	8,000	-	*9,000*	*Gallons*	*8,500*	____	____	____	____
	9,000	-	*10,000*	*Gallons*	*9,500*	____	____	____	____
	10,000	-	*11,000*	*Gallons*	*10,500*	____	____	____	____
	11,000	-	*12,000*	*Gallons*	*11,500*	____	____	____	____
	12,000	-	*13,000*	*Gallons*	*12,500*	____	____	____	____
	13,000	-	*14,000*	*Gallons*	*13,500*	____	____	____	____
	14,000	-	*15,000*	*Gallons*	*14,500*	____	____	____	____
	15,000	-	*16,000*	*Gallons*	*15,500*	____	____	____	____
	16,000	-	*17,000*	*Gallons*	*16,500*	____	____	____	____
	17,000	-	*18,000*	*Gallons*	*17,500*	____	____	____	____
	18,000	-	*19,000*	*Gallons*	*18,500*	____	____	____	____
	19,000	-	*20,000*	*Gallons*	*19,500*	____	____	____	____
	____	-	____	*Gallons*	____	____	____	____	____
	____	-	____	*Gallons*	____	____	____	____	____
	____	-	____	*Gallons*	____	____	____	____	____
					Total	(____)	(____)	(____)	(____)
					Average Usage		(____)		(____)

XII. ANALYSIS OF ACTUAL WATER USAGE - EXISTING SYSTEM - 12 MONTH PERIOD

For Period January to December, 2012.

All Meter Sizes	Monthly Water Usage	Average	Residential No. of Users	Residential Usage (1000)	Non-Residential No. of Users	Non-Residential Usage (1000)
	0 - 2,000 Gallons	1,000	3,357	3,635	585	313
	2,000 - 3,000 Gallons	2,500	42	116		
	3,000 - 4,000 Gallons	3,500				
	4,000 - 5,000 Gallons	4,500				
	5,000 - 6,000 Gallons	5,500	12,202	64,446		
	6,000 - 7,000 Gallons	6,500			26	183
	7,000 - 8,000 Gallons	7,500			8	60
	8,000 - 9,000 Gallons	8,500			338	3,028
	9,000 - 10,000 Gallons	9,500				
	10,000 - 11,000 Gallons	10,500				
	11,000 - 12,000 Gallons	11,500				
	12,000 - 13,000 Gallons	12,500				
	13,000 - 14,000 Gallons	13,500				
	14,000 - 15,000 Gallons	14,500				
	15,000 - 16,000 Gallons	15,500				
	16,000 - 17,000 Gallons	16,500				
	17,000 - 18,000 Gallons	17,500	39	689		
	18,000 - 19,000 Gallons	18,500				
	19,000 - 20,000 Gallons	19,500				
	20,000 - 500,000 Gallons		11	793	105	7,963
	Over - 500,000 Gallons				5	13,255
	- Gallons					
		Total	(15,640)	(69,679)	(1,062)	(24,802)
		Average Usage		(4.5)		(23)
	Elizabethtown				1	33,881

Total Water Purchased and/or Produced 1,849,188 per PSC Annual Report

Total Water Sold 1,546,633 per PSC Annual Report

XIII. FACILITY CHARACTERISTICS OF PROPOSED SEWER SYSTEM

A. Sewage Treatment:

1. Type ______________________________

2. Method of Sludge Disposal ______________________________

____

3. Cost per 1,000 gallons if sewage treatment is contracted:

$ ______________________________

B. Treatment Capacity of Sewage Treatment Plant ______________________________

C. Type of Sewage Collector System (Describe) ______________________________

____

____

D. Number and Capacity of Sewage Lift Stations ______________________________

____

E. Sewage Collection System:

Lineal Feet of Collector Lines, by size 6" ____________ *8"* ____________

10" ____________ *12"* ____________*, Larger* ____________

XIV. LAND AND RIGHTS - PROPOSED SEWER SYSTEM

Number of Treatment Plant Sites ______________________________

Number of Pump Sites ______________________________

Number of Other Sites ______________________________

Total Acreage ______________________________ *Acres*

Purchase Price *$*

XV. FACILITY CHARACTERISTICS OF PROPOSED WATER SYSTEM

A. Water Source: Describe adequacy of source (quality and quantity). Include an explanation of raw water source, raw water intake structure, treatment plant capacity, and current level of production (WTP). Also describe the adequacy of Water Purchase Contract if applicable.

The proposed project provides a connection to Louisville Water Company (LWC) for a supplemental water supply. The raw water source is the Ohio River. The LWC treatment capacity is approximately 400 MGD operating at approximately 250 MGD. The Water Purchase Agreement was signed on March 19, 2013 for a term of 50 years.

B. Water Storage: N/A

Type: Ground Storage Tank ______ Elevated Tank ______

Standpipe ______ Other ______

Number of Storage Structures ______

Total Storage Volume Capacity ______

C. Water Distribution System:

Pipe Material Ductile Iron

Lineal Feet of Pipe: 3" Diameter ______ 4" ______

6" ______ 8" ______

10" ______ 24" 43,000

Number and Capacity of Pump Station(s) ______

One Pump Station: initial 2 MGD expandable to 10 MGD

XVI. LAND AND RIGHTS - PROPOSED WATER SYSTEM

Number of Treatment Plant Sites	
Number of Storage Tank Sites	
Number of Pump Stations	1
Total Acreage	0.7 Acres
Purchase Price	$40,000

XVII. NUMBER OF NEW SEWER USERS

Residential (In Town) *	______
Residential (Out of Town) *	______
Non-Residential (In Town)	______
Non-Residential (Out of Town)	______
Total	______
Number to Total Potential Users Living in the Service Area	______

****Note:* <u>*Residential Users:*</u> *Classify by type of user regardless of quantity of water used. This classification should include those meters serving individual rural residences.***

XVIII. PROPOSED SEWER CONNECTION FEES FOR EACH SIZE METER CONNECTION

Meter Size	Connection Fee
5/8" x 3/4"	$
1 - Inch	$
1-1/2 Inch	$
2 - Inch	$
3 - Inch	$
4 - Inch	$
5 - Inch	$
6 - Inch	$

XIX. NUMBER OF NEW WATER USERS

N/A – No new users

Residential (In Town) *	________
Residential (Out of Town) *	________
Non-Residential (In Town)	________
Non-Residential (Out of Town)	________
Total	________
Number to Total Potential Users Living in the Service Area	________

*Note: Residential Users: Classify by type of user regardless of quantity of water used. This classification should include those meters serving individual rural residences.

XX. PROPOSED WATER CONNECTION FEES FOR EACH SIZE WATER METER CONNECTION:

Meter Size	Connection Fee
5/8" x 3/4"	$600
1 - Inch	$700
1-1/2 Inch	$1,550
2 - Inch	$1,700
3 - Inch	$ actual cost
4 - Inch	$ actual cost
5 - Inch	$ actual cost
6 - Inch	$ actual cost

XXI. SEWER RATES - PROPOSED

A. Proposed Rate Schedule without RUS Grant:

Percentage of Water Bill ________ % Minimum Charge $ ______________

Other: (If Charge Not Based on Water Bill) ____________________________

____

Proposed Rate Schedule: (Without RUS Grant)

First	________	*Gallons @ $* ________________	*Minimum.*
Next	________	*Gallons @ $* ________________	*per 1,000 Gallons.*
Next	________	*Gallons @ $* ________________	*per 1,000 Gallons.*
Next	________	*Gallons @ $* ________________	*per 1,000 Gallons.*
Next	________	*Gallons @ $* ________________	*per 1,000 Gallons.*
Next	________	*Gallons @ $* ________________	*per 1,000 Gallons.*
All Over	________	*Gallons @ $* ________________	*per 1,000 Gallons.*

The above proposed rate, without RUS grant, must be completed for each grant. If the applicant/engineer desires, there is no objection to recommending a proposed rate with an estimated RUS grant in the Table below. However, the preparer should remember that the Table (A) above must be completed prior to Table (B).

B. Recommended Rate Schedule with RUS Grant:

Percentage of Water Bill ________ % Minimum Charge $ ______________

Other: (If Charge Not Based on Water Bill) ____________________________

____

Recommended Rate Schedule: (With RUS Grant)

First	________	*Gallons @ $* ________________	*Minimum.*
Next	________	*Gallons @ $* ________________	*per 1,000 Gallons.*
Next	________	*Gallons @ $* ________________	*per 1,000 Gallons.*
Next	________	*Gallons @ $* ________________	*per 1,000 Gallons.*
Next	________	*Gallons @ $* ________________	*per 1,000 Gallons.*
Next	________	*Gallons @ $* ________________	*per 1,000 Gallons.*
All Over	________	*Gallons @ $* ________________	*per 1,000 Gallons.*

If more than one rate, use additional sheets.

XXII. WATER RATES – PROPOSED

A. Proposed Rate Schedule without RUS Grant: 5/8" x ¾"

First	2,000	Gallons @ $	18.50	Minimum.
Next	498,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.90	per 1,000 Gallons.

The above proposed rate, without RUS grant, must be completed for each grant. If the applicant/engineer desires, there is no objection to recommending a proposed rate with an estimated RUS grant in the Table below. However, the preparer should remember that the Table (A) above must be completed prior to Table (B).

B. Recommended Rate Schedule with RUS Grant: N/A

First		Gallons @ $		Minimum.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over		Gallons @ $		per 1,000 Gallons.

If more than one rate, use additional sheets.

XXII. WATER RATES – PROPOSED

A. Proposed Rate Schedule without RUS Grant: 1" Meter

First	5,000	Gallons @ $	33.95	Minimum.
Next	495,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.90	per 1,000 Gallons.

The above proposed rate, without RUS grant, must be completed for each grant. If the applicant/engineer desires, there is no objection to recommending a proposed rate with an estimated RUS grant in the Table below. However, the preparer should remember that the Table (A) above must be completed prior to Table (B).

B. Recommended Rate Schedule with RUS Grant:

First		Gallons @ $		Minimum.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over		Gallons @ $		per 1,000 Gallons.

If more than one rate, use additional sheets.

XXII. WATER RATES – PROPOSED

A. Proposed Rate Schedule without RUS Grant: 1 ½ '' Meter

First	10,000	Gallons @ $	59.70	Minimum.
Next	490,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.90	per 1,000 Gallons.

The above proposed rate, without RUS grant, must be completed for each grant. If the applicant/engineer desires, there is no objection to recommending a proposed rate with an estimated RUS grant in the Table below. However, the preparer should remember that the Table (A) above must be completed prior to Table (B).

B. Recommended Rate Schedule with RUS Grant:

First		Gallons @ $		Minimum.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over		Gallons @ $		per 1,000 Gallons.

If more than one rate, use additional sheets.

XXII. WATER RATES – PROPOSED (EXISTING RATES)

A. Proposed Rate Schedule without RUS Grant: 2" Meter

First	20,000	Gallons @ $	111.20	Minimum.
Next	480,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.90	per 1,000 Gallons.

The above proposed rate, without RUS grant, must be completed for each grant. If the applicant/engineer desires, there is no objection to recommending a proposed rate with an estimated RUS grant in the Table below. However, the preparer should remember that the Table (A) above must be completed prior to Table (B).

B. Recommended Rate Schedule with RUS Grant:

First		Gallons @ $		Minimum.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over		Gallons @ $		per 1,000 Gallons.

If more than one rate, use additional sheets.

XXII. WATER RATES – PROPOSED

A. Proposed Rate Schedule without RUS Grant: 3" Meter

First	30,000	Gallons @ $	162.70	Minimum.
Next	470,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.90	per 1,000 Gallons.

The above proposed rate, without RUS grant, must be completed for each grant. If the applicant/engineer desires, there is no objection to recommending a proposed rate with an estimated RUS grant in the Table below. However, the preparer should remember that the Table (A) above must be completed prior to Table (B).

B. Recommended Rate Schedule with RUS Grant:

First		Gallons @ $		Minimum.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over		Gallons @ $		per 1,000 Gallons.

If more than one rate, use additional sheets.

XXII. WATER RATES – PROPOSED

A. Proposed Rate Schedule without RUS Grant: 4" Meter

First	50,000	Gallons @ $	265.70	Minimum.
Next	450,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.90	per 1,000 Gallons.

The above proposed rate, without RUS grant, must be completed for each grant. If the applicant/engineer desires, there is no objection to recommending a proposed rate with an estimated RUS grant in the Table below. However, the preparer should remember that the Table (A) above must be completed prior to Table (B).

B. Recommended Rate Schedule with RUS Grant:

First		Gallons @ $		Minimum.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over		Gallons @ $		per 1,000 Gallons.

If more than one rate, use additional sheets.

XXII. WATER RATES – PROPOSED

A. Proposed Rate Schedule without RUS Grant: 6'' Meter

First	100,000	Gallons @ $	523.20	Minimum.
Next	400,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.90	per 1,000 Gallons.

The above proposed rate, without RUS grant, must be completed for each grant. If the applicant/engineer desires, there is no objection to recommending a proposed rate with an estimated RUS grant in the Table below. However, the preparer should remember that the Table (A) above must be completed prior to Table (B).

B. Recommended Rate Schedule with RUS Grant:

First		Gallons @ $		Minimum.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over		Gallons @ $		per 1,000 Gallons.

If more than one rate, use additional sheets.

XXII. WATER RATES – PROPOSED

A. Proposed Rate Schedule without RUS Grant: 8" Meter

First	150,000	Gallons @ $	780.70	Minimum.
Next	350,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.90	per 1,000 Gallons.

The above proposed rate, without RUS grant, must be completed for each grant. If the applicant/engineer desires, there is no objection to recommending a proposed rate with an estimated RUS grant in the Table below. However, the preparer should remember that the Table (A) above must be completed prior to Table (B).

B. Recommended Rate Schedule with RUS Grant:

First		Gallons @ $		Minimum.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over		Gallons @ $		per 1,000 Gallons.

If more than one rate, use additional sheets.

XXII. WATER RATES – PROPOSED

A. Proposed Rate Schedule without RUS Grant: 10" Meter

First	250,000	Gallons @ $	1,295.70	Minimum.
Next	250,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.90	per 1,000 Gallons.

The above proposed rate, without RUS grant, must be completed for each grant. If the applicant/engineer desires, there is no objection to recommending a proposed rate with an estimated RUS grant in the Table below. However, the preparer should remember that the Table (A) above must be completed prior to Table (B).

B. Recommended Rate Schedule with RUS Grant:

First		Gallons @ $		Minimum.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over		Gallons @ $		per 1,000 Gallons.

If more than one rate, use additional sheets.

XXII. WATER RATES – PROPOSED

A. Proposed Rate Schedule without RUS Grant: 12" Meter

First	400,000	Gallons @ $	2,068.20	Minimum.
Next	100,000	Gallons @ $	5.15	per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over	500,000	Gallons @ $	2.90	per 1,000 Gallons.

The above proposed rate, without RUS grant, must be completed for each grant. If the applicant/engineer desires, there is no objection to recommending a proposed rate with an estimated RUS grant in the Table below. However, the preparer should remember that the Table (A) above must be completed prior to Table (B).

B. Recommended Rate Schedule with RUS Grant:

First		Gallons @ $		Minimum.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
Next		Gallons @ $		per 1,000 Gallons.
All Over		Gallons @ $		per 1,000 Gallons.

If more than one rate, use additional sheets.

XXIII. FORECAST OF SEWER USAGE - INCOME - EXISTING SYSTEM - EXISTING USERS

*Meter Size**	*Monthly Sewer Usage*	*Average*	*Average Rate*	*Residential*			*Non-Residential*		
				*No. of Users***	*Usage (1000)*	*Income*	*No. of Users*	*Usage (1000)*	*Income*
	0 - 2,000 Gallons	*1,000*	____	____	____	____	____	____	____
	2,000 - 3,000 Gallons	*2,500*	____	____	____	____	____	____	____
	3,000 - 4,000 Gallons	*3,500*	____	____	____	____	____	____	____
	4,000 - 5,000 Gallons	*4,500*	____	____	____	____	____	____	____
	5,000 - 6,000 Gallons	*5,500*	____	____	____	____	____	____	____
	6,000 - 7,000 Gallons	*6,500*	____	____	____	____	____	____	____
	7,000 - 8,000 Gallons	*7,500*	____	____	____	____	____	____	____
	8,000 - 9,000 Gallons	*8,500*	____	____	____	____	____	____	____
	9,000 - 10,000 Gallons	*9,500*	____	____	____	____	____	____	____
5/8	*10,000 - 11,000 Gallons*	*10,500*	____	____	____	____	____	____	____
x	*11,000 - 12,000 Gallons*	*11,500*	____	____	____	____	____	____	____
3/4	*12,000 - 13,000 Gallons*	*12,500*	____	____	____	____	____	____	____
Inch	*13,000 - 14,000 Gallons*	*13,500*	____	____	____	____	____	____	____
	14,000 - 15,000 Gallons	*14,500*	____	____	____	____	____	____	____
	15,000 - 16,000 Gallons	*15,500*	____	____	____	____	____	____	____
	16,000 - 17,000 Gallons	*16,500*	____	____	____	____	____	____	____
	17,000 - 18,000 Gallons	*17,500*	____	____	____	____	____	____	____
	18,000 - 19,000 Gallons	*18,500*	____	____	____	____	____	____	____
	19,000 - 20,000 Gallons	*19,500*	____	____	____	____	____	____	____
	____ - ____ *Gallons*	____	____	____	____	____	____	____	____
	____ - ____ *Gallons*	____	____	____	____	____	____	____	____
	____ - ____ *Gallons*	____	____	____	____	____	____	____	____
		Sub-Total		( )	( )	( )	( )	( )	( )
		Average Monthly Rate	( )						
		Average Monthly Usage			( )			( )	

* *Breakdown of meter size usage is <u>not</u> required unless different sewer rates are charged based on size of water meter.*

** *Number of users should reflect the actual number of "meter settings".*

	-	Gallons								
	-	Gallons								
1-	-	Gallons								
Inch	-	Gallons								
	-	Gallons								
	-	Gallons								
		Sub-Total			( )	( )	( )	( )	( )	( )
	-	Gallons								
	-	Gallons								
1-1/2	-	Gallons								
Inch	-	Gallons								
	-	Gallons								
	-	Gallons								
		Sub-Total			( )	( )	( )	( )	( )	( )
	-	Gallons								
	-	Gallons								
2-	-	Gallons								
Inch	-	Gallons								
	-	Gallons								
	-	Gallons								
		Sub-Total			( )	( )	( )	( )	( )	( )
	-	Gallons								
	-	Gallons								
3-	-	Gallons								
Inch	-	Gallons								
	-	Gallons								
	-	Gallons								
		Sub-Total			( )	( )	( )	( )	( )	( )
	-	Gallons								
	-	Gallons								
4-	-	Gallons								
Inch	-	Gallons								
	-	Gallons								
	-	Gallons								
		Sub-Total			( )	( )	( )	( )	( )	( )

* *Breakdown of meter size usage is not required unless different sewer rates are charged based on size of water meter.*

** *Number of users should reflect the actual number of "meter settings".*

	___ - ___ Gallons	___	___	___	___	___	___	___	___
	___ - ___ Gallons	___	___	___	___	___	___	___	___
5-	___ - ___ Gallons	___	___	___	___	___	___	___	___
Inch	___ - ___ Gallons	___	___	___	___	___	___	___	___
	___ - ___ Gallons	___	___	___	___	___	___	___	___
	___ - ___ Gallons	___	___	___	___	___	___	___	___
	Sub-Total			( )	( )	( )	( )	( )	( )
	___ - ___ Gallons	___	___	___	___	___	___	___	___
	___ - ___ Gallons	___	___	___	___	___	___	___	___
6-	___ - ___ Gallons	___	___	___	___	___	___	___	___
Inch	___ - ___ Gallons	___	___	___	___	___	___	___	___
	___ - ___ Gallons	___	___	___	___	___	___	___	___
	___ - ___ Gallons	___	___	___	___	___	___	___	___
	Sub-Total			( )	( )	( )	( )	( )	( )
	TOTALS			( )	( )	( )	( )	( )	( )

<u>MULTI-FAMILY AND APARTMENT USER ANALYSIS</u>

If billed as a typical user, the information should be included in the residential information above. If not billed as a typical residential user, please explain below.

Name of Unit	*Number of Units*	*Number of Meters*	*Revenue Calculations*

* ***Breakdown of meter size usage is <u>not</u> required unless different sewer rates are charged based on size of water meter.***

** ***Number of users should reflect the actual number of "meter settings".***

XXIV. FORECAST OF SEWER USAGE - INCOME - NEW USERS - EXTENSION ONLY

*Meter Size**	*Monthly Sewer Usage*	*Average*	*Average Rate*	*Residential*			*Non-Residential*		
				*No. of Users***	*Usage (1000)*	*Income*	*No. of Users*	*Usage (1000)*	*Income*
	0 - 2,000 Gallons	*1,000*							
	2,000 - 3,000 Gallons	*2,500*							
	3,000 - 4,000 Gallons	*3,500*							
	4,000 - 5,000 Gallons	*4,500*							
	5,000 - 6,000 Gallons	*5,500*							
	6,000 - 7,000 Gallons	*6,500*							
	7,000 - 8,000 Gallons	*7,500*							
	8,000 - 9,000 Gallons	*8,500*							
	9,000 - 10,000 Gallons	*9,500*							
5/8	*10,000 - 11,000 Gallons*	*10,500*							
x	*11,000 - 12,000 Gallons*	*11,500*							
3/4	*12,000 - 13,000 Gallons*	*12,500*							
Inch	*13,000 - 14,000 Gallons*	*13,500*							
	14,000 - 15,000 Gallons	*14,500*							
	15,000 - 16,000 Gallons	*15,500*							
	16,000 - 17,000 Gallons	*16,500*							
	17,000 - 18,000 Gallons	*17,500*							
	18,000 - 19,000 Gallons	*18,500*							
	19,000 - 20,000 Gallons	*19,500*							
	______ - ______ Gallons								
	______ - ______ Gallons								
	______ - ______ Gallons								
	Sub-Total			( )	( )	( )	( )	( )	( )
	Average Monthly Rate		( )						
	Average Monthly Usage					( )			( )

* *Breakdown of meter size usage is not required unless different sewer rates are charged based on size of water meter.*

** *Number of users should reflect the actual number of "meter settings".*

	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
1-	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
Inch	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
1-1/2	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
Inch	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
2-	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
Inch	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
3-	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
Inch	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
4-	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
Inch	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	______ - ______ *Gallons*	______	______	______	______	______	______	______	______
	Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)

* ***Breakdown of meter size usage is <u>not</u> required unless different sewer rates are charged based on size of water meter.***

** ***Number of users should reflect the actual number of "meter settings".***

	______ - ______	***Gallons*** ______	______	______	______	______	______	______	______
	______ - ______	***Gallons*** ______	______	______	______	______	______	______	______
5-	______ - ______	***Gallons*** ______	______	______	______	______	______	______	______
Inch	______ - ______	***Gallons*** ______	______	______	______	______	______	______	______
	______ - ______	***Gallons*** ______	______	______	______	______	______	______	______
	______ - ______	***Gallons*** ______	______	______	______	______	______	______	______
		Sub-Total		(___)	(___)	(___)	(___)	(___)	(___)
	______ - ______	***Gallons*** ______	______	______	______	______	______	______	______
	______ - ______	***Gallons*** ______	______	______	______	______	______	______	______
6-	______ - ______	***Gallons*** ______	______	______	______	______	______	______	______
Inch	______ - ______	***Gallons*** ______	______	______	______	______	______	______	______
	______ - ______	***Gallons*** ______	______	______	______	______	______	______	______
	______ - ______	***Gallons*** ______	______	______	______	______	______	______	______
		Sub-Total		(___)	(___)	(___)	(___)	(___)	(___)
		TOTALS		(___)	(___)	(___)	(___)	(___)	(___)

MULTI-FAMILY AND APARTMENT USER ANALYSIS

If billed as a typical user, the information should be included in the residential information above. If not billed as a typical residential user, please explain below.

Name of Unit	***Number of Units***	***Number of Meters***	***Revenue Calculations***

* ***Breakdown of meter size usage is not required unless different sewer rates are charged based on size of water meter.***

** ***Number of users should reflect the actual number of "meter settings".***

SUMMARY/ADDENDUM ATTACHMENT

Hardin County Water District No. 2
Usage Analysis
(Period: Jan. – Dec. 2012)
Annual Revenue Utilizing Proposed Rates

Residential

		Bills	1,000 Gallons	First 2,000	Next 498,000	Over 500,000	Revenue
5/8" x 3/4"	First 2,000	40,289	43,618.7	43,618.7			
	Next 498,000	146,405	771,458.9	292,810.0	478,648.9	---	
	Over 500,000	---	---	---	---	---	
		186,694	815,077.6	336,428.7	478,648.9	---	
	Rate	$18.50			$5.15	$2.90	$5,918,881
				First 5,000	Next 495,000	Over 500,000	
1"	First 5,000	503	1,388.6	1,388.6			
	Next 495,000	465	8,272.7	2,325.0	5,947.7	---	
	Over 500,000	---	---	---	---	---	
		968	9,661.3	3,713.6	5,947.7	---	
	Rate	$33.95			$5.15	$2.90	$63,494
				First 10,000	Next 490,000	Over 500,000	
1 1/2"	First 10,000	27	158.1	158.1			
	Next 490,000	57	4,122.0	570.0	3,552.0	---	
	Over 500,000	---	---	---	---	---	
		84	4,280.1	728.1	3,552.0	---	
	Rate	$59.70			$5.15	$2.90	$23,308
				First 20,000	Over 480,000	Over 500,000	
2"	First 20,000	14	---	---			
	Next 480,000	60	5,385.5	1,200.0	4,185.5	---	
	Over 500,000	---	---	---	---	---	
		74	5,385.5	1,200.0	4,185.5	---	
	Rate	$111.20			$5.15	$2.90	$29,784
Totals		**187,820**	**834,404.5**				**$6,035,467**

SUMMARY ADDENDUM ATTACHMENT
(CONTINUED)

NON-RESIDENTIAL

		BILLS	GALLONS	FIRST 2,000	NEXT 498,000	OVER 500,000	REVENUE
5/8"	First 2,000	6,627	3,218.6	3,218.6			
	Next 498,000	4,056	36,334.5	8,112.0	28,222.5		
	Over 500,000	---	---	---	---	---	
		10,684	39,553.1	11,330.6	28,222.5	---	
	Rate	$18.50			$5.15	$2.90	$343,000
				FIRST 5,000	NEXT 495,000	OVER 500,000	
1"	First 5,000	390	532.2	532.2			
	Next 495,000	514	16,106.0	2,570.0	13,536.0		
	Over 500,000	---	---	---	---	---	
		904	16,638.2	3,102.2	13,536.0	---	
	Rate	$33.95			$5.15	2.90	$100,401
				FIRST 10,000	NEXT 490,000	OVER 500,000	
1 1/2"	First 10,000	145	1,450.0	1,450.0			
	Next 490,000	161	17,383.0	1,610.0	15,773.0		
	Over 500,000	3	2,004.5	30.0	1,470.0	504.5	
		309	20,837.5	3,090.0	17,243.0	504.5	
	Rate	$59.70			$5.15	$2.90	$108,712
				FIRST 20,000	NEXT 480,000	OVER 500,000	
2"	First 20,000	317	2,189.6	2,189.6			
	Next 480,000	423	45,108.9	8,460.0	36,648.9		
	Over 500,000	9	4,848.4	180.0	4,320.0	348.4	
		749	52,146.9	10,829.6	40,968.9	348.4	
	Rate	$111.20			$5.15	$2.90	$295,289
TOTALS		**11,906**	**129,175.7**				**$847,402**

SUMMARY ADDENDUM ATTACHMENT
(CONTINUED)

NON-RESIDENTIAL

		BILLS	GALLONS	FIRST 30,000	NEXT 470,000	OVER 500,000	REVENUE
3"	First 30,000	94	714.3	714.3			
	Next 470,000	152	15,897.8	4,560.0	11,337.8		
	Over 500,000	---	---	---	---	---	
		246	16,612.1	5,274.3	11,337.8	---	
	Rate	$162.70			$5.15	$2.90	$98,414
				FIRST 50,000	NEXT 450,000	OVER 500,000	
4"	First 50,000	13	280.0	280.0			
	Next 450,000	10	1,055.0	500.0	555.0		
	Over 500,000	35	38,782.1	1,750.0	15,750.0	21,282.1	
		58	40,117.1	2,530.0	16,305.0	21,282.1	
	Rate	$265.70			$5.15	$2.90	$161,099
				FIRST 100,000	NEXT 400,000	OVER 500,000	
6"	First 100,000	---	---				
	Next 400,000	---	---				
	Over 500,000	12	113,425	1,200.0	4,800.0	107,425.0	
		12	113,425	1,200.0	4,800.0	107,425.0	
	Rate	$523.20			$5.15	$2.90	$342,531
TOTALS		**316**	**170,154**				**$602,044**

APPENDIX A-6

SUMMARY OF REVENUES

1. FORECAST OF WATER SALES THROUGH USAGE ANALYSIS WITH PROPOSED RATES

Meter Size	Residential			Non-Residential		
	Annual Bills	Annual M Gallons	Annual Revenue	Annual Bills	Annual M Gallons	Annual Revenue
5/8" x 3/4"	186,694	815,078	$5,918,881	10,684	39,553	343,000
1"	968	9,661	63,494	904	16,638	100,401
1 1/2"	84	4,280	23,308	309	20,838	108,712
2"	74	5,386	29,784	749	52,147	295,289
3"				246	16,612	98,414
4"				58	40,117	161,099
6"				12	113,425	342,531
TOTALS	**187,820**	**834,405**	**$6,035,467**	**12,962**	**299,330**	**$1,449,446**

Average Monthly Usage: 4,442 Gals.
Average Monthly Bill: $32.11

Average Monthly Usage: 23,000 Gals.
Average Monthly Bill: $109.54

2. SUMMARY OF ALL REVENUES

1. Residential Sales	$6,035,467
2. Non-Residential Sales	1,449,446
3. Added Customers (App. A-2)	69,265
4. E-town Sales (App. A-5)	932,470
5. Misc. Revenues (App. A-1, Item 8)	157,320
6. Other Revenues (App. A-1, Item 8)	144,375
	$8,788,343
Interest Income (1)	464,822
TOTAL REVENUES	**$9,253,165**

(1) The water district's invested funds will be reduced by $4,500,000. The 2012 average return on investments is 4.9%. The reduction in investment income is thereby reduced approximately $220,500. The resultant projected investment income is $464,822 ($685,322 - $220,500).

XXV. FORECAST OF WATER USAGE - INCOME - EXISTING SYSTEM - EXISTING USERS

Meter Size*	Monthly Sewer Usage	Average	Average Rate	Residential			Non-Residential		
				No. of Users**	Usage (1000)	Income	No. of Users	Usage (1000)	Income
	0 - 2,000 Gallons	1,000	______	______	______	______	______	______	______
	2,000 - 3,000 Gallons	2,500	______	______	______	______	______	______	______
	3,000 - 4,000 Gallons	3,500	______	______	______	______	______	______	______
	4,000 - 5,000 Gallons	4,500	______	______	______	______	______	______	______
	5,000 - 6,000 Gallons	5,500	______	______	______	______	______	______	______
	6,000 - 7,000 Gallons	6,500	______	______	______	______	______	______	______
	7,000 - 8,000 Gallons	7,500	______	______	______	______	______	______	______
	8,000 - 9,000 Gallons	8,500	______	______	______	______	______	______	______
	9,000 - 10,000 Gallons	9,500	______	______	______	______	______	______	______
5/8	10,000 - 11,000 Gallons	10,500	______	______	______	______	______	______	______
x	11,000 - 12,000 Gallons	11,500	______	______	______	______	______	______	______
3/4	12,000 - 13,000 Gallons	12,500	______	______	______	______	______	______	______
Inch	13,000 - 14,000 Gallons	13,500	______	______	______	______	______	______	______
	14,000 - 15,000 Gallons	14,500	______	______	______	______	______	______	______
	15,000 - 16,000 Gallons	15,500	______	______	______	______	______	______	______
	16,000 - 17,000 Gallons	16,500	______	______	______	______	______	______	______
	17,000 - 18,000 Gallons	17,500	______	______	______	______	______	______	______
	18,000 - 19,000 Gallons	18,500	______	______	______	______	______	______	______
	19,000 - 20,000 Gallons	19,500	______	______	______	______	______	______	______
	______ - ______ Gallons	______	______	______	______	______	______	______	______
	______ - ______ Gallons	______	______	______	______	______	______	______	______
	______ - ______ Gallons	______	______	______	______	______	______	______	______
	Sub-Total			(____)	(____)	(____)	(____)	(____)	(____)
	Average Monthly Rate		(______)						
	Average Monthly Usage					(____)			(____)

* Breakdown of meter size usage is not required unless different water rates are charged based on size of water meter.

** Number of users should reflect the actual number of "meter settings".

	- Gallons								
	- Gallons								
1-	- Gallons								
Inch	- Gallons								
	- Gallons								
	- Gallons								
	Sub-Total			( )	( )	( )	( )	( )	( )
	- Gallons								
	- Gallons								
1-1/2	- Gallons								
Inch	- Gallons								
	- Gallons								
	- Gallons								
	Sub-Total			( )	( )	( )	( )	( )	( )
	- Gallons								
	- Gallons								
2-	- Gallons								
Inch	- Gallons								
	- Gallons								
	- Gallons								
	Sub-Total			( )	( )	( )	( )	( )	( )
	- Gallons								
	- Gallons								
3-	- Gallons								
Inch	- Gallons								
	- Gallons								
	- Gallons								
	Sub-Total			( )	( )	( )	( )	( )	( )
	- Gallons								
	- Gallons								
4-	- Gallons								
Inch	- Gallons								
	- Gallons								
	- Gallons								
	Sub-Total			( )	( )	( )	( )	( )	( )

* Breakdown of meter size usage is <u>not</u> required unless different water rates are charged based on size of water meter.

** Number of users should reflect the actual number of "meter settings".

	______	- ______	Gallons______	______	______	______	______	______	______	______
	______	- ______	Gallons______	______	______	______	______	______	______	______
5-	______	- ______	Gallons______	______	______	______	______	______	______	______
Inch	______	- ______	Gallons______	______	______	______	______	______	______	______
	______	- ______	Gallons______	______	______	______	______	______	______	______
	______	- ______	Gallons______	______	______	______	______	______	______	______
			Sub-Total		(____)	(____)	(____)	(____)	(____)	(____)
	______	- ______	Gallons______	______	______	______	______	______	______	______
	______	- ______	Gallons______	______	______	______	______	______	______	______
6-	______	- ______	Gallons______	______	______	______	______	______	______	______
Inch	______	- ______	Gallons______	______	______	______	______	______	______	______
	______	- ______	Gallons______	______	______	______	______	______	______	______
	______	- ______	Gallons______	______	______	______	______	______	______	______
			Sub-Total		(____)	(____)	(____)	(____)	(____)	(____)
			TOTALS		(____)	(____)	(____)	(____)	(____)	(____)

MULTI-FAMILY AND APARTMENT USER ANALYSIS

If billed as a typical user, the information should be included in the residential information above. If not billed as a typical residential user, please explain below.

Name of Unit	Number of Units	Number of Meters	Revenue Calculations

* Breakdown of meter size usage is not required unless different water rates are charged based on size of water meter.

** Number of users should reflect the actual number of "meter settings".

1. Added Customers: 976 cust x 12 x $30.34 =	**$355,342**
2. Elizabethtown: 426,566 M Gals. X $1.77 =	**$755,022**
3. A.P. Technoglass (10,000 M Gals.): 12 x $22,533 =	**$270,396**
4. Bulk Sales:	**$2,000**
Annual Sales:	**$1,382,760**

XXVI. FORECAST OF WATER USAGE - INCOME - NEW USERS - EXTENSION ONLY

N/A

Meter Size*	Monthly Sewer Usage	Average	Average Rate	Residential No. of Users**	Residential Usage (1000)	Residential Income	Non-Residential No. of Users	Non-Residential Usage (1000)	Non-Residential Income
	0 - 2,000 Gallons	1,000							
	2,000 - 3,000 Gallons	2,500							
	3,000 - 4,000 Gallons	3,500							
	4,000 - 5,000 Gallons	4,500							
	5,000 - 6,000 Gallons	5,500							
	6,000 - 7,000 Gallons	6,500							
	7,000 - 8,000 Gallons	7,500							
	8,000 - 9,000 Gallons	8,500							
	9,000 - 10,000 Gallons	9,500							
5/8	10,000 - 11,000 Gallons	10,500							
x	11,000 - 12,000 Gallons	11,500							
3/4	12,000 - 13,000 Gallons	12,500							
Inch	13,000 - 14,000 Gallons	13,500							
	14,000 - 15,000 Gallons	14,500							
	15,000 - 16,000 Gallons	15,500							
	16,000 - 17,000 Gallons	16,500							
	17,000 - 18,000 Gallons	17,500							
	18,000 - 19,000 Gallons	18,500							
	19,000 - 20,000 Gallons	19,500							
	______ - ______ Gallons	______							
	______ - ______ Gallons	______							
	______ - ______ Gallons	______							
	Sub-Total			( )	( )	( )	( )	( )	( )
	Average Monthly Rate		( )						
	Average Monthly Usage					( )			( )

* Breakdown of meter size usage is not required unless different sewer rates are charged based on size of water meter.

** Number of users should reflect the actual number of "meter settings".

	______ - ______	Gallons	______	______	______	______	______	______	______	______
	______ - ______	Gallons	______	______	______	______	______	______	______	______
1-	______ - ______	Gallons	______	______	______	______	______	______	______	______
Inch	______ - ______	Gallons	______	______	______	______	______	______	______	______
	______ - ______	Gallons	______	______	______	______	______	______	______	______
	______ - ______	Gallons	______	______	______	______	______	______	______	______
		Sub-Total			( )	( )	( )	( )	( )	( )
	______ - ______	Gallons	______	______	______	______	______	______	______	______
	______ - ______	Gallons	______	______	______	______	______	______	______	______
1-1/2	______ - ______	Gallons	______	______	______	______	______	______	______	______
Inch	______ - ______	Gallons	______	______	______	______	______	______	______	______
	______ - ______	Gallons	______	______	______	______	______	______	______	______
	______ - ______	Gallons	______	______	______	______	______	______	______	______
		Sub-Total			( )	( )	( )	( )	( )	( )
	______ - ______	Gallons	______	______	______	______	______	______	______	______
	______ - ______	Gallons	______	______	______	______	______	______	______	______
2-	______ - ______	Gallons	______	______	______	______	______	______	______	______
Inch	______ - ______	Gallons	______	______	______	______	______	______	______	______
	______ - ______	Gallons	______	______	______	______	______	______	______	______
	______ - ______	Gallons	______	______	______	______	______	______	______	______
		Sub-Total			( )	( )	( )	( )	( )	( )
	______ - ______	Gallons	______	______	______	______	______	______	______	______
	______ - ______	Gallons	______	______	______	______	______	______	______	______
3-	______ - ______	Gallons	______	______	______	______	______	______	______	______
Inch	______ - ______	Gallons	______	______	______	______	______	______	______	______
	______ - ______	Gallons	______	______	______	______	______	______	______	______
	______ - ______	Gallons	______	______	______	______	______	______	______	______
		Sub-Total			( )	( )	( )	( )	( )	( )
	______ - ______	Gallons	______	______	______	______	______	______	______	______
	______ - ______	Gallons	______	______	______	______	______	______	______	______
4-	______ - ______	Gallons	______	______	______	______	______	______	______	______
Inch	______ - ______	Gallons	______	______	______	______	______	______	______	______
	______ - ______	Gallons	______	______	______	______	______	______	______	______
	______ - ______	Gallons	______	______	______	______	______	______	______	______
		Sub-Total			( )	( )	( )	( )	( )	( )

* Breakdown of meter size usage is <u>not</u> required unless different sewer rates are charged based on size of water meter.

** Number of users should reflect the actual number of "meter settings".

	______ - ______	Gallons______	______	______	______	______	______	______	______	______
	______ - ______	Gallons______	______	______	______	______	______	______	______	______
5-	______ - ______	Gallons______	______	______	______	______	______	______	______	______
Inch	______ - ______	Gallons______	______	______	______	______	______	______	______	______
	______ - ______	Gallons______	______	______	______	______	______	______	______	______
	______ - ______	Gallons______	______	______	______	______	______	______	______	______
		Sub-Total		(____)	(____)	(____)	(____)	(____)	(____)	
	______ - ______	Gallons______	______	______	______	______	______	______	______	______
	______ - ______	Gallons______	______	______	______	______	______	______	______	______
6-	______ - ______	Gallons______	______	______	______	______	______	______	______	______
Inch	______ - ______	Gallons______	______	______	______	______	______	______	______	______
	______ - ______	Gallons______	______	______	______	______	______	______	______	______
	______ - ______	Gallons______	______	______	______	______	______	______	______	______
		Sub-Total		(____)	(____)	(____)	(____)	(____)	(____)	
		TOTALS		(____)	(____)	(____)	(____)	(____)	(____)	

MULTI-FAMILY AND APARTMENT USER ANALYSIS

If billed as a typical user, the information should be included in the residential information above. If not billed as a typical residential user, please explain below.

Name of Unit	Number of Units	Number of Meters	Revenue Calculations
____________	______	______	____________________
____________	______	______	____________________
____________	______	______	____________________
____________	______	______	____________________
____________	______	______	____________________
____________	______	______	____________________
____________	______	______	____________________

* Breakdown of meter size usage is not required unless different sewer rates are charged based on size of water meter.

** Number of users should reflect the actual number of "meter settings".

XXVII. CURRENT OPERATING BUDGET - (SEWER SYSTEM)

(As of the last full operating year.)

A. Operating Income:	
Sewer Revenue	$ ______
Late Charge Fees	______
Other (Describe)	______
Less Allowances and Deductions	(______)
Total Operating Income	$ ______
B. Operation and Maintenance Expenses: *(Based on Uniform System of Accounts prescribed by National Association of Regulatory Utility Commissioners)*	
Operation Expense	$ ______
Maintenance Expense	______
Customer Accounts Expense	______
Administrative and General Expense	______
Total Operating and Maintenance Expenses	$ ______
Net Operating Income	$ ______
C. Non-Operating Income:	
Interest on Deposits	$ ______
Other (Identify)	______
Total Non-Operating Income	$ ______
D. Net Income	$ ______
E. Debt Repayment:	
RUS Interest	$ ______
RUS Principal	______
Non-RUS Interest	______
Non-RUS Principal	______
Total Debt Repayment	$ ______
F. Balance Available for Coverage	$ ______

XXVIII. PROPOSED OPERATING BUDGET - (SEWER SYSTEM) - EXISTING SYSTEM AND NEW USERS (1st Full Year of Operation) Year Ending ______

A. Operating Income:	
Sewer Revenue	$ ________
Late Charge Fees	________
Other (Describe)	________
Less Allowances and Deductions	(________)
Total Operating Income	$ ________

B. Operation and Maintenance Expenses:
(Based on Uniform System of Accounts prescribed by National Association of Regulatory Utility Commissioners)

Operation Expense	$ ________
Maintenance Expense	________
Customer Accounts Expense	________
Administrative and General Expense	________
Total Operating and Maintenance Expenses	$ ________
Net Operating Income	$ ________

C. Non-Operating Income:	
Interest on Deposits	$ ________
Other (Identify)	________
Total Non-Operating Income	$ ________

D. Net Income	$ ________

E. Debt Repayment:	
RUS Interest	$ ________
RUS Principal	________
Non-RUS Interest	________
Non-RUS Principal	________
Total Debt Repayment	$ ________

F. Balance Available for Coverage	$ ________

XXIX. PROPOSED OPERATING BUDGET - (SEWER SYSTEM) - NEW USERS - EXTENSION ONLY (1st Full Year of Operation) Year Ending ________

A. Operating Income:

Sewer Revenue	$ ________
Late Charge Fees	________
Other (Describe)	________
Less Allowances and Deductions	(________)
Total Operating Income	$ ________

B. Operation and Maintenance Expenses:
(Based on Uniform System of Accounts prescribed by National Association of Regulatory Utility Commissioners)

Operation Expense	$ ________
Maintenance Expense	________
Customer Accounts Expense	________
Administrative and General Expense	________
Total Operating and Maintenance Expenses	$ ________
Net Operating Income	$ ________

C. Non-Operating Income:

Interest on Deposits	$ ________
Other (Identify)	________
Total Non-Operating Income	$ ________

D. Net Income	$ ________

E. Debt Repayment:

RUS Interest	$ ________
RUS Principal	________
Non-RUS Interest	________
Non-RUS Principal	________
Total Debt Repayment	$ ________

F. Balance Available for Coverage	$ ________

XXX. CURRENT OPERATING BUDGET - (WATER SYSTEM)
(As of the last full operating year.) Jan – Dec 2012

A. Operating Income:

Water Sales	$ 8,239,333
Disconnect/Reconnect/Late Charge Fees	157,320
Other (Describe)	144,375
Less Allowances and Deductions	(1,509)
Total Operating Income	$ 8,539,519

B. Operation and Maintenance Expenses:
(Based on Uniform System of Accounts prescribed by National Association of Regulatory Utility Commissioners)

Source of Supply Expense	$
Pumping Expense	422,512
Water Treatment Expense	1,036,103
Transmission and Distribution Expense	1,532,263
Customer Accounts Expense	802,435
Administrative and General Expense	680,949
Taxes	153,048
Amortization of Debt Discount	77,982
Depreciation	1,633,703
Total Operating Expenses	$ 6,338,995
Net Operating Income	$ 2,200,524

C. Non-Operating Income:

Interest on Deposits	$ 685,322
Other (Identify)	
Total Non-Operating Income	$ 685,322

D. Net Income $ 2,885,846

E. Debt Repayment:

RUS Interest	$ 97,500
RUS Principal	57,000
Non-RUS Interest	719,061
Non-RUS Principal	852,000
Total Debt Repayment	$ 1,725,561

F. Balance Available for Coverage $ 1,160,285

XXXI. PROPOSED OPERATING BUDGET - (WATER SYSTEM) - EXISTING SYSTEM AND NEW USERS (1st Full Year of Operation) Year Ending 2016

A. Operating Income:		
Water Sales	$	8,486,648
Disconnect/Reconnect/Late Charge Fees		157,320
Other (Describe)		144,375
Less Allowances and Deductions		( )
Total Operating Income	$	8,788,343
B. Operation and Maintenance Expenses: (Based on Uniform System of Accounts prescribed by National Association of Regulatory Utility Commissioners)		
Source of Supply Expense	$	
Pumping Expense		479,950
Water Treatment Expense		2,022,974
Transmission and Distribution Expense		1,817,860
Customer Accounts Expense		933,479
Administrative and General Expense		777,901
Taxes		153,048
Depreciation		1,308,360
Total Operating Expenses	$	7,493,572
Net Operating Income	$	1,294,771
C. Non-Operating Income:		
Interest on Deposits	$	464,822
Other (Identify)		
Total Non-Operating Income	$	464,822
D. Net Income	$	1,759,593
E. Debt Repayment:		
RUS Interest	$	317,440
RUS Principal		86,000
Non-RUS Interest		427,888
Non-RUS Principal		635,000
Total Debt Repayment	$	1,466,328
F. Balance Available for Coverage	$	293,265

XXXII. <u>PROPOSED OPERATING BUDGET - (WATER SYSTEM) - NEW USERS - EXTENSION ONLY</u> (1st Full Year of Operation) Year Ending N/A

A. Operating Income:

Water Sales	$ ________
Disconnect/Reconnect/Late Charge Fees	________
Other (Describe)	________
Less Allowances and Deductions	(________)
Total Operating Income	$ ________

B. Operation and Maintenance Expenses:
(Based on Uniform System of Accounts prescribed by National Association of Regulatory Utility Commissioners)

Source of Supply Expense	$ ________
Pumping Expense	________
Water Treatment Expense	________
Transmission and Distribution Expense	________
Customer Accounts Expense	________
Administrative and General Expense	________
Total Operating Expenses	$ ________
Net Operating Income	$ ________

C. Non-Operating Income:

Interest on Deposits	$ ________
Other (Identify)	________
Total Non-Operating Income	$ ________

D. Net Income $ ________

E. Debt Repayment:

RUS Interest	$ ________
RUS Principal	________
Non-RUS Interest	________
Non-RUS Principal	________
Total Debt Repayment	$ ________

F. Balance Available for Coverage $ ________

XXXIII. ESTIMATED PROJECT COST - SEWER
(Round to nearest $100)

	Collection	*Treatment*	*Total*
Development			
Land and Rights			
Legal			
Engineering			
Interest			
Contingencies			
Initial Operating and Maintenance			
Other			
TOTAL			

XXXIV. PROPOSED PROJECT FUNDING - SEWER

	Collection	*Treatment*	*Total*
Applicant - User Contribution Fees			
Other - Applicant Contribution			
RUS Loan			
RUS Grant			
ARC Grant (If applicable)			
CDBG (If applicable)			
Other (Specify)			
Other (Specify)			

XXXV. ESTIMATED PROJECT COST - WATER

Development	$ 11,889,000
Land and Rights	50,000
Legal	60,000
Engineering	1,202,000
Interest	490,000
Contingencies	1,300,000
Administration	9,000
Other	
TOTAL	$ 15,000,000

XXXVI. PROPOSED PROJECT FUNDING

Applicant	$ 4,500,000
Other Applicant Contribution	
RUS Financial Assistance	5,000,000
RUS Grant	
ARC Grant (If applicable)	
Other – BRAC Grant	5,000,000
Other (Specify) – KIA Grant	500,000
Other (Specify)	
TOTAL	$ 15,000,000

EXHIBIT 3

Addendum to

Preliminary

Engineering

Report

KENVIRONS

ADDENDUM

TO

PRELIMINARY ENGINEERING REPORT

Hardin County Water District No. 2
Elizabethtown, Kentucky

SUPPLEMENTAL WATER SUPPLY

PREPARED BY:

KENVIRONS, INC.
452 VERSAILLES ROAD
FRANKFORT, KENTUCKY 40601

STATE OF KENTUCKY
CARLOS F. MILLER
7384
LICENSED
PROFESSIONAL ENGINEER

3-31-16

PROJECT NO. 2007107

MARCH, 2016

Kenvirons, Inc.

Civil & Environmental Engineering and Laboratory Services

TABLE OF CONTENTS

Page No.

1. INTRODUCTION

A Preliminary Engineering Report dated May, 2013 (PER) describes, in detail, the scope and need for a supplemental water supply and the system facilities to provide that water supply identified herein as the current project. That report is included herewith by reference.

Bids were received on March 9, 2016. The current project was bid in two (2) contracts. The number of bids submitted for each contract are as follows:

Contract 26: Colesburg Pump Station (7)
Contract 27: 24-Inch Transmission Main (14)

The low bidder for Contract 26 was Dugan & Meyers Construction Co., Inc., Louisville, Kentucky in the amount of $1,574,624. The low bidder for Contract 27 was Hubert Excavating & Contracting, Salvisa, Kentucky in the amount of $6,000,000. A copy of the certified bid tabulations is included in the Appendix to this report.

The project funding, per the Rural Development Letter of Conditions, is $15,000,000. The funding sources available for this project are as follows:

Rural Development Loan	$5,000,000
BRAC Grant	5,000,000
KIA Grant	500,000
Applicant Contribution	4,500,000
Total per RD Letter of Conditions	$15,000,000

The difference between the sums of the construction bids ($7,574,624) and the initial opinion of probable construction cost ($11,989,000) is a positive $4,414,376. This 58% difference is apparently due to the bidding environment, i.e. the lack of projects being advertised for bids and the unusually low scrap iron prices resulting in unusually low ductile iron pipe prices. The Revised Cost for the current project is shown in Table 1.

TABLE 1

Budget Item	R.D. Letter of Conditions	Revised Cost for Current Project
Development	$11,989,000	$7,574,624
Land & Rights	50,000	135,000
Legal	60,000	60,000
Engineering	1,202,000	807,307[1]
Environmental	100,000	20,200[1]
Administrative	49,000	5,000
Interest	250,000	233,000
Contingencies	1,300,000	6,164,869
	$15,000,000	$15,000,000

[1]See Table 2

TABLE 2
Engineering and Environmental Costs

Item	Engineering	Environmental
Design (6.49%)	$491,593	
Construction Observation (3.15%)	238,601	
Preliminary Engineering Report	10,000	
Addendum to PER	7,000	
Surveying, Plat Preparation	13,000	
Geotechnical Consultant	20,000	
Aerial Photography	4,025	
Water Supply Study	8,132	
LWC Interconnect Study	14,956	
Environmental Study		17,700
Archaeological Study		2,500
	$807,307	$20,200

Regarding the known and projected costs to date for the current project, there is a contingency in the amount of $6,164,869 as shown in Table 1. This Addendum to the initial PER includes additional work for Rural Development's review and approval to fund the additional work with left over funds after the current project is substantially complete.

The plan for utilizing the existing project funding is herein segregated into Project Phases to clearly identify the project work and sequence for implementation. A project map is included herein delineating the work phases.

2. PROJECT PHASES

Phase 1 – Current Project

Phase 1 is the current work described in the initial PER and for which bids were received on March 9, 2016. Bid tabulations are contained in the Appendix to this report.

a. Colesburg Pump Station	$1,574,624
b. 42,000 L.F. of 24-inch D.I. pipeline and appurtenances	$6,000,000
Total Construction Cost	**$7,574,624**

Phase 2 – Additional Work

a. Upper Pump Station Site (excluding the actual operating pump station)

The project described in the May, 2013 PER includes a 24-inch transmission main with a capacity of 10 MGD and a pump station with an initial capacity of 2 MGD designed to be easily expandable to 10 MGD in the future. The Colesburg Pump Station (lower pump station) has been designed initially with two (2) pumps to deliver up to 2 MGD to the Pear Orchard tank. In the future, when the demand exceeds 2 MGD, the pumping capacity can be upgraded by simply adding one pump at a time as demand dictates for a total of five (5) pumps with the pumping capacity of 10 MGD.

At approximately 4 MGD an upper pump station will be necessary to double pump the flow in series from 4 MGD to 10 MGD because of the higher pressures generated pumping the higher flows into Pear Orchard Tank directly from the Colesburg Pump Station. The flow of the pumps is individually controlled with variable frequency drives (VFD). The installation and operation of the upper pump station will cause the pressure at the lower pump station to reduce from 270 psi to 210 psi and move farther out on the pump curve to a higher flow to accomplish the ultimate capacity of 10 MGD with both pump stations operating in series. Both pump stations are necessary to achieve the 10 MGD capacity. The initial PER included the upper pump station as necessary to achieve the future 10 MGD pumping capacity but only the 24-inch stub-outs for the suction and discharge pipelines were included in the current project bids. The decision of the water district board is to postpone the design and construction of the upper pump station until the demand dictates the need for the increase in pumping capacity.

An additional decision was to purchase the land for the upper pump station, install the access road and approximately 1,000 LF of 24-inch pipeline for the suction and discharge piping to the pump station site. The Opinion of Probable Cost for this activity is as follows:

24-Inch, R.J., CL 350 D.I. Pipe 1,000 LF @ $130/LF	$130,000
24-Inch D.I. Fittings	10,000
Access Road	20,000
Total Construction	160,000
Land and Rights	75,000
Legal	10,000
Engineering	
Design	12,000
Construction Observation	5,000
Surveying and Plat Preparation	15,000
Geotechnical	15,000
Environmental	13,000
Total Project Cost	**$305,000**

b. Tank Upgrades – Additional Work

Three storage tanks are in need of restoration and painting. Bids will be advertised for this work to be done during the current year.

South End Tank	$500,000
Clearwell No. 1, White Mills WTP	125,000
Cecilia Tank	600,000
Total Construction	1,225,000
Bid Documents, Consultant Management and Inspection	147,000
Administration	2,000
Total Project Cost	**$1,374,000**

c. North/South Connector Section 2 – Additional Work

The North/South Connector is a 16-inch D.I. transmission pipeline connecting Hardin County Water District No. 1 and Hardin County Water District No. 2 to facilitate an emergency water supply in either direction.

This section of pipeline has already been engineered with Section 1 and KDOW approval has been received. Section 1 has been installed. The Water District's plan is to install Section 2 during 2017 with the District's personnel and equipment. An itemized cost estimate for materials is included in the Appendix to this report.

Pipeline Materials	**$625,196**

Phase 3 – Additional Work

a. Upper Pump Station

This work includes the construction of the operating pump station on the site acquired in Phase 2.a. An opinion of probable cost is itemized as follows:

1. Construction Cost	
Pump Station	$1,242,000
Additional Yard Piping	20,000
Bituminous Paving	50,000
Chain Link Fence	12,000
Structural Fill	30,000
Site Work	20,000
Mobilization, Bonds, Insurance	50,000
Total Construction	$1,424,000
2. Engineering	
Design	$124,600
Construction Observation	72,300
Additional Geotechnical	15,000
3. Admin and Legal	10,000
Total Project Cost	**$1,645,900**

b. North/South Connector Pump Station

This pump Station is an element of the North/South Connector project connecting HCWD No. 1 to HCWD No. 2 to facilitate pumping in either direction during an emergency situation and/or in the event this location becomes a wholesale water source for HCWD No. 1 from HCWD No. 2. An opinion of probable cost is as follows:

1. Construction Cost	
Pump Station (6 MGD)	$793,000
Site Work	10,000

Yard Piping	20,000
Bituminous Paving	5,000
Chain Link Fence	12,000
Structural Fill	20,000
Total Construction	$860,000
2. Engineering	
Design	77,600
Construction Observation	50,100
Geotechnical	22,000
3. Environmental, Archaeological, etc.	10,000
4. Admin and Legal	8,191
Total Project Cost	**$1,027,891**

3. SUMMARY OF DEVELOPMENT COSTS

A summary of the development costs for the work described herein and submitted for Rural Development approval to be included in the present project funding is as follows:

Phase 1 – Current Project

a. Colesburg Pump Station	$1,574,624
b. 24-Inch Transmission Pipeline	6,000,000
Total Phase 1	$7,574,624

Phase 2 – Additional Work

a. Upper Pump Station Site	$160,000
b. Tank Upgrades	1,225,000
c. North/South Connector Pipeline	625,196
Total Phase 2	$2,010,196

Phase 3 – Additional Work

a. Upper Pump Station	$1,424,000
b. North/South Connector Pump Station	860,000
Total Phase 3	$2,284,000
TOTAL DEVELOPMENT COST	**$11,868,820**

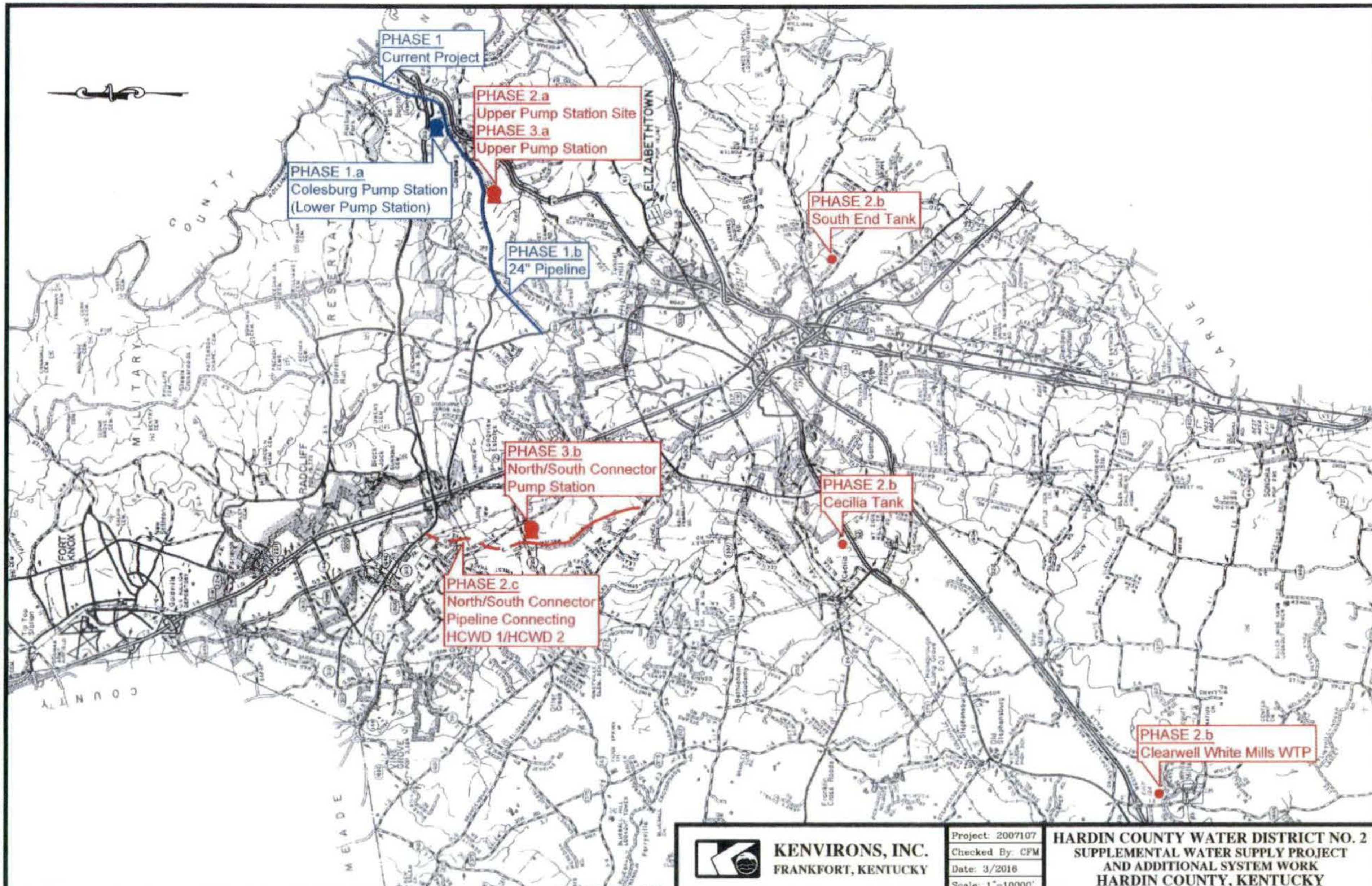
The revised cost breakdown for the current project and the additional work is shown in Table 3.

TABLE 3
SUMMARY OF PROJECT COSTS

Budget Item	Phase 1 Current Project	Phase 2 Additional Work	Phase 3 Additional Work	Total
Development	$7,574,624	$2,010,196	$2,284,000	$11,868,820
Land & Rights	135,000	75,000	---	210,000
Legal	60,000	10,000	14,191	84,191
Engineering	807,307	194,000	361,600	1,362,907
Environmental	20,200	13,000	10,000	43,200
Administrative	5,000	2,000	4,000	11,000
Interest	233,000	---	---	233,000
Contingency	757,462	201,020	228,400	1,186,882
	$9,592,593	$2,505,216	$2,902,191	$15,000,000

4. CONCLUSIONS AND RECOMMENDATIONS

The additional work described herein is necessary for the continued excellent service, present and future reliability and continued sound financial condition of Hardin County Water District No. 2. The existing project funding is sufficient to include the additional projects. Contingent on Rural Development's approval, it is hereby recommended to include the additional projects in the present project funding.



N:\P\2007107\misc\MAP FOR EXTRA WORK.dwg, 4/1/2016 9:15:15 AM, Savin C4502A.pc3

APPENDIX

Hardin County Water District No. 2
P.O. Box 970 / 360 Ring Road
Elizabethtown, KY 42701
(270) 737-1056 Fax: (270) 737-2301

PROJECT ESTIMATE: North to South Connector - Section 2

QTY.	UNITS	DESCRIPTION	UNIT PRICE	TOTAL
15500	ft	16" Ductile Pipe	$ 35.00	$ 542,500.00
1	ea	16"x16" Tapping Sleeve	$ 1,100.00	$ 1,100.00
1	ea	16"x16" Tapping Valve	$ 5,500.00	$ 5,500.00
11	ea	16" 221/2	$ 234.80	$ 2,582.80
3	ea	16" 90	$ 342.80	$ 1,028.40
2	ea	16"x16"x16" Tee	$ 480.40	$ 960.80
2	ea	16" Foster	$ 336.68	$ 673.36
38	ea	16" Uni Flange	$ 119.82	$ 4,553.16
3	ea	6" Gate Valve	$ 2,872.76	$ 8,618.28
1	ea	6" Foster	$ 74.95	$ 74.95
1	ea	6" 90	$ 48.40	$ 48.40
2	ea	6" Uni Flange	$ 33.39	$ 66.78
1	ea	6"x6" Tapping Sleeve	$ 276.10	$ 276.10
1	ea	6"x6" Tapping Vavle	$ 617.38	$ 617.38
1	ea	2" ARV	$ 550.00	$ 550.00
2	ea	6"x18" Swivel	$ 87.60	$ 175.20
8	ea	Cast Iron Valve Box- Tall	$ 52.00	$ 416.00
1	ea	5' Bury Fire Hydrant	$ 1,604.00	$ 1,604.00
35	yds	concrete	$ 110.00	$ 3,850.00
100	tons	gravel	$ 35.00	$ 3,500.00
15500	ft	seed and straw	$ 3.00	$ 46,500.00
704	hrs	labor	$ 104.13	$ 73,307.52
704	hrs	equipment	$ 179.00	$ 126,016.00
				$ -
				$ -
				$ -

Total Materials		$ 625,195.61
Total Labor and Equipment		$ 199,323.52

Total estimated project cost	**$ 824,519.13**

BID TABULATIONS

KENVIRONS, INC.
452 Versailles Road
Frankfort, KY 40601

Owner: Hardin County Water District No. 2
Project: Contract 26: Colesburg Pump Station
Bid Date: March 9, 2016 at 1:00 P.M. Local Time

Project No. 2007107

Base Bid				Dugan & Meyers Const. Co., Inc. 2700 River Green Circle Louisville, KY 40206		Howard Engineering & Const. Co. 1303 South Main Street London, KY 40741		Smith Contractors, Inc. P.O. Box 480 Lawrenceburg, KY 40342		PPMI Construction Company 5201 Middle Mt. Vernon Road Evansville, IN 47712	
Item No.	Item Description	Unit	Quantity	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	Pump Station, Complete & Operable	LS	1	$1,270,000.00	$1,270,000.00	$1,404,000.00	$1,404,000.00	$1,300,000.00	$1,300,000.00	$1,519,210.00	$1,519,210.00
2	Sitework	LS	1	64,000.00	64,000.00	32,000.00	32,000.00	50,000.00	50,000.00	22,400.00	22,400.00
3	Yard Piping	LS	1	37,000.00	37,000.00	75,000.00	75,000.00	150,000.00	150,000.00	27,800.00	27,800.00
4	Bituminous concrete paving per plan dimensions including 18" RCP & Junction Box	LS	1	46,000.00	46,000.00	41,000.00	41,000.00	35,000.00	35,000.00	34,600.00	34,600.00
5	Chain Link Fence	LF	468	31.00	14,508.00	33.00	15,444.00	30.00	14,040.00	31.73 *	14,849.64
6	Woven Wire Fence	LF	196	21.00	4,116.00	20.00	3,920.00	10.00	1,960.00	17.60 *	3,449.60
7	Mobilization, Bonds, Insurance & Project Sign	LS	1	47,000.00	47,000.00	54,000.00	54,000.00	150,000.00	150,000.00	35,150.00	35,150.00
8	Structural Fill	TON	1,000	37.00	37,000.00	40.00	40,000.00	20.00	20,000.00	75.00	75,000.00
9	Equipment Allowance	LS	1	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00
10	Fire Alarm System	LS	1	10,000.00	10,000.00	15,000.00	15,000.00	10,000.00	10,000.00	10,630.00	10,630.00
	TOTAL BASE BID				$1,574,624.00		$1,725,364.00		$1,776,000.00		* $1,788,089.24

Base Bid				Scott & Ritter, Inc. P.O. Box 749 Bowling Green, KY 42102		MAC Construction & Excavating, Inc. P.O. Box 6787 New Albany, IN 47151		Cleary Construction, Inc. 2006 Edmonton Road Tompkinsville, KY 42167	
Item No.	Item Description	Unit	Quantity	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	Pump Station, Complete & Operable	LS	1	$1,606,726.00	$1,606,726.00	$1,525,612.40	$1,525,612.40	$1,685,000.00	$1,685,000.00
2	Sitework	LS	1	37,660.00	37,660.00	100,000.00	100,000.00	115,000.00	115,000.00
3	Yard Piping	LS	1	12,110.00	12,110.00	60,000.00	60,000.00	115,000.00	115,000.00
4	Bituminous concrete paving per plan dimensions including 18" RCP & Junction Box	LS	1	35,640.00	35,640.00	45,000.00	45,000.00	37,000.00	37,000.00
5	Chain Link Fence	LF	468	32.00	14,976.00	30.81	14,419.08	36.00	16,848.00
6	Woven Wire Fence	LF	196	9.00	1,764.00	16.37	3,208.52	22.00	4,312.00
7	Mobilization, Bonds, Insurance & Project Sign	LS	1	38,000.00	38,000.00	50,000.00	50,000.00	57,000.00	57,000.00
8	Structural Fill	TON	1,000	5.00	5,000.00	41.00	41,000.00	30.00	30,000.00
9	Equipment Allowance	LS	1	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00
10	Fire Alarm System	LS	1	9,079.00	9,079.00	9,760.00	9,760.00	8,500.00	8,500.00
	TOTAL BASE BID				$1,805,955.00		$1,894,000.00		$2,113,660.00

STATE OF KENTUCKY
R. VAUGHN WILLIAMS
18628
LICENSED
PROFESSIONAL ENGINEER

* Denotes an arithmetic error was made on the Bids submitted. Values reported in the Bid Tabulation have been corrected based upon the unit price submitted.
The above is a true and complete tabulation of the Bids received by Hardin County Water District No. 2 at their office located at 360 Ring Road, Elizabethtown, KY on March 9, 2016 at 1:00 P.M. local time.

By: R. Vaughn Williams, P.E. 3/10/16
Date

BID TABULATIONS

KENVIRONS, INC.
452 Versailles Road
Frankfort, KY 40601

Owner: Hardin County Water District No. 2
Project: Contract 27: 24" Transmission Main
Bid Date: March 9, 2016 at 1:00 P.M. Local Time

Project No. 2007107

Base Bid				Hubert Excavating & Contracting, 2590 Bondville Road, Salvisa, KY 40372		MAC Construction & Excavating, Inc., P.O. Box 6787, New Albany, IN 47151		Infrastructure Systems, Inc., P.O. Box 148, Orleans, IN 47452		Merryman Excavation, 1501 Lamb Road, Woodstock, IL 60098		Tribute Contracting & Consultants, LLC, 306 Little Solida Road, South Point, OH 45680	
Item No.	Item Description	Unit	Quantity	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	24" D.I., Locked Joint, CL 350 Pipe	LF	6,090	$130.00	$791,700.00	$129.00	$785,610.00	$137.00	$834,330.00	$126.50	$770,385.00	$136.00	$828,240.00
2	24" D.I., P.O., CL 350 Pipe	LF	12,350	98.00	1,210,300.00	90.00	1,111,500.00	94.00	1,160,900.00	87.60	1,081,860.00	99.00	1,222,650.00
3	24" D.I., Locked Joint, CL 350 Pipe w/ Nitrile Gaskets	LF	10,964	136.00	1,491,104.00	134.00	1,469,176.00	134.00	1,469,176.00	129.00	1,414,356.00	143.00	1,567,852.00
4	24" D.I., P.O., CL 250 Pipe	LF	12,755	90.00	1,147,950.00	80.00	1,020,400.00	85.00	1,084,175.00	79.70	1,016,573.50	91.00	1,160,705.00
5	6" D.I., P.O. Pipe w/ Field Lock Gaskets	LF	400	38.00	15,200.00	50.00	20,000.00	30.00	12,000.00	30.60	12,240.00	36.50	14,600.00
6	Polyethylene Wrap for D.I. Pipe	LF	42,200	2.00	84,400.00	3.00	126,600.00	2.00	84,400.00	2.70	113,940.00	2.75	116,050.00
7	Bored 36" Steel Encasement for 24" D.I. Carrier Pipe	LF	1,100	415.00	456,500.00	380.00	418,000.00	525.00	577,500.00	709.87	780,857.00	490.00	539,000.00
8	Open Cut 36" Steel Encasement for 24" D.I. Carrier Pipe	LF	80	175.00	14,000.00	215.00	17,200.00	165.00	13,200.00	126.50	10,120.00	268.00	21,440.00
9	Trenched Stream Crossing	LF	400	50.00	20,000.00	210.00	84,000.00	115.00	46,000.00	184.00	73,600.00	127.00	50,800.00
10	24" CL 250 Butterfly Valve	EA	10	7,300.00	73,000.00	7,300.00	73,000.00	7,400.00	74,000.00	8,029.00	80,290.00	7,554.00	75,540.00
11	24" CL 250 Gate Valve w/ Spur Gearing	EA	5	17,000.00	85,000.00	19,000.00	95,000.00	17,500.00	87,500.00	18,950.00	94,750.00	21,183.00	105,915.00
12	6" Fire Hydrant	EA	9	10,000.00	90,000.00	7,200.00	64,800.00	7,500.00	67,500.00	6,546.00	58,914.00	6,175.00	55,575.00
13	8" Blow-Off Assembly	EA	5	9,800.00	49,000.00	6,700.00	33,500.00	6,500.00	32,500.00	5,036.00	25,180.00	5,187.00	25,935.00
14	Air Release Valve	EA	5	6,400.00	32,000.00	3,200.00	16,000.00	1,400.00	7,000.00	10,385.00	51,925.00	1,883.00	9,415.00
15	Leak Detection Assembly	EA	1	1,700.00	1,700.00	3,700.00	3,700.00	1,900.00	1,900.00	3,462.00	3,462.00	1,138.00	1,138.00
16	Erosion Prevention & Sediment Control	LS	1	15,000.00	15,000.00	100,000.00	100,000.00	55,000.00	55,000.00	148,210.00	148,210.00	20,000.00	20,000.00
17	Pavement Restoration												
	17.1 Crushed Stone	LF	1,800	20.00	36,000.00	6.00	10,800.00	25.00	45,000.00	30.10	54,180.00	25.00	45,000.00
	17.2 Light Duty Bituminous	LF	260	55.00	14,300.00	77.00	20,020.00	65.00	16,900.00	88.90	23,114.00	80.00	20,800.00
	17.3 Heavy Duty Bituminous	LF	100	75.00	7,500.00	106.00	10,600.00	120.00	12,000.00	290.00	29,000.00	130.00	13,000.00
	17.4 Concrete Driveways	LF	100	50.00	5,000.00	160.00	16,000.00	77.00	7,700.00	76.60	7,660.00	130.00	13,000.00
18	24" Restrained Type Field Lock Gaskets, CL 350	EA	340	460.00	156,400.00	515.00	175,100.00	250.00	85,000.00	513.00	174,420.00	620.00	210,800.00
19	Stub-Out for Colesburg Pump Station	LS	1	39,700.00	39,700.00	35,000.00	35,000.00	44,000.00	44,000.00	55,235.00	55,235.00	40,046.00	40,046.00
20	Stub-Out for Future Pump Station	EA	2	12,800.00	25,600.00	13,000.00	26,000.00	24,000.00	48,000.00	14,830.00	29,660.00	40,942.00	81,884.00
21	Final Pipeline Restoration												
	21.1 Final Grade/Seed/Fertilizer/Straw	LF	33,200	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00
	21.2 Final Grade/Seed/Fertilizer/ Erosion Control Blanket	LF	8,400	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00
22	Concrete Cut-Off Wall	LS	2	5,000.00	10,000.00	3,000.00	6,000.00	9,500.00	19,000.00	13,555.00	27,110.00	6,000.00	12,000.00
23	Creek Bank Rip-Rap	TON	60	25.00	1,500.00	57.00	3,420.00	70.00	4,200.00	95.60	5,736.00	60.00	3,600.00
24	Concrete Thrust Collar	LS	1	7,500.00	7,500.00	7,200.00	7,200.00	6,500.00	6,500.00	7,058.00	7,058.00	10,250.00	10,250.00
25	Mobilization, Bonds, Insurance & Project Sign	LS	1	23,046.00	23,046.00	170,000.00	170,000.00	185,000.00	185,000.00	216,900.00	216,900.00	144,175.00	144,175.00
26	Demobilization	LS	1	5,000.00	5,000.00	25,000.00	25,000.00	25,000.00	25,000.00	11,400.00	11,400.00	16,000.00	16,000.00
	TOTAL BASE BID				$6,000,000.00		$6,035,226.00		$6,196,981.00		$6,469,735.50		$6,517,010.00

The above is a true and complete tabulation of the Bids received by Hardin County Water District No. 2 at their office located at 3[illegible]ing Road, Elizabethtown, KY, on March 9, 2016 at 1:00 P.M. local time.

By: R. Vaughn Williams, P.E.   3/10/16 Date

STATE OF KENTUCKY
R. VAUGHN WILLIAMS
18628
LICENSED
PROFESSIONAL ENGINEER

F:\PROJECTS\2007\2007107\Contract 27 Bid Tab

BID TABULATIONS

KENVIRONS, INC.
452 Versailles Road
Frankfort, KY 40601

Owner: Hardin County Water District No. 2
Project: Contract 27: 24" Transmission Main
Bid Date: March 9, 2016 at 1:00 P.M. Local Time

Project No. 2007107

Base Bid				Garney Companies, Inc. 200 Crutchfield Ave. Nashville, TN 37210		G&W Construction Co., Inc. 6730 Flemingsburg Road Morehead, KY 40351		Norris Brothers Excavating 1007 Rodgers Road Crossville, TN 38572		Cleary Construction, Inc. 2006 Edmonton Road Tompkinsville, KY 42167		Howell Contractors, Inc. 980 Helen Ruth Drive Ft. Wright, KY 41017	
Item No.	Item Description	Unit	Quantity	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	24" D.I., Locked Joint, CL 350 Pipe	LF	6,090	$136.00	$828,240.00	$148.96	$907,166.40	$155.20	$945,168.00	$152.00	$925,680.00	$160.00	$974,400.00
2	24" D.I., P.O., CL 350 Pipe	LF	12,350	118.00	1,457,300.00	117.12	1,446,432.00	143.56	1,772,966.00	112.00	1,383,200.00	117.00	1,444,950.00
3	24" D.I., Locked Joint, CL 350 Pipe w/ Nitrile Gaskets	LF	10,964	138.00	1,513,032.00	154.01	1,688,565.64	150.35	1,648,437.40	160.00	1,754,240.00	165.00	1,809,060.00
4	24" D.I., P.O., CL 250 Pipe	LF	12,755	92.00	1,173,460.00	95.85	1,222,566.75	106.70	1,360,958.50	103.00	1,313,765.00	95.00	1,211,725.00
5	6" D.I., P.O. Pipe w/ Field Lock Gaskets	LF	400	43.00	17,200.00	40.97	16,388.00	31.04	12,416.00	50.00	20,000.00	60.00	24,000.00
6	Polyethylene Wrap for D.I. Pipe	LF	42,200	2.00	84,400.00	5.62	237,164.00	1.94	81,868.00	4.00	168,800.00	2.00	84,400.00
7	Bored 36" Steel Encasement for 24" D.I. Carrier Pipe	LF	1,100	525.00	577,500.00	495.00	544,500.00	523.80	576,180.00	400.00	440,000.00	554.00	609,400.00
8	Open Cut 36" Steel Encasement for 24" D.I. Carrier Pipe	LF	80	300.00	24,000.00	250.00	20,000.00	378.30	30,264.00	270.00	21,600.00	250.00	20,000.00
9	Trenched Stream Crossing	LF	400	190.00	76,000.00	585.00	234,000.00	194.00	77,600.00	500.00	200,000.00	150.00	60,000.00
10	24" CL 250 Butterfly Valve	EA	10	8,850.00	88,500.00	6,958.26	69,582.60	7,760.00	77,600.00	8,200.00	82,000.00	7,800.00	78,000.00
11	24" CL 250 Gate Valve w/ Spur Gearing	EA	5	17,500.00	87,500.00	20,150.64	100,753.20	20,370.00	101,850.00	20,000.00	100,000.00	17,000.00	85,000.00
12	6" Fire Hydrant	EA	9	6,500.00	58,500.00	5,700.00	51,300.00	3,104.00	27,936.00	7,600.00	68,400.00	7,000.00	63,000.00
13	8" Blow-Off Assembly	EA	5	7,500.00	37,500.00	4,743.76	23,718.80	4,850.00	24,250.00	7,000.00	35,000.00	6,500.00	32,500.00
14	Air Release Valve	EA	5	3,800.00	19,000.00	2,557.07	12,785.35	1,746.00	8,730.00	2,300.00	11,500.00	2,500.00	12,500.00
15	Leak Detection Assembly	EA	1	2,750.00	2,750.00	2,000.00	2,000.00	970.00	970.00	2,000.00	2,000.00	1,500.00	1,500.00
16	Erosion Prevention & Sediment Control	LS	1	160,400.00	160,400.00	5,000.00	5,000.00	4,850.00	4,850.00	40,000.00	40,000.00	50,000.00	50,000.00
17	Pavement Restoration												
	17.1 Crushed Stone	LF	1,800	55.00	99,000.00	22.00	39,600.00	29.10	52,380.00	25.00	45,000.00	20.00	36,000.00
	17.2 Light Duty Bituminous	LF	260	65.00	16,900.00	50.00	13,000.00	29.10	7,566.00	75.00	19,500.00	100.00	26,000.00
	17.3 Heavy Duty Bituminous	LF	100	105.00	10,500.00	65.00	6,500.00	29.10	2,910.00	200.00	20,000.00	125.00	12,500.00
	17.4 Concrete Driveways	LF	100	200.00	20,000.00	75.00	7,500.00	29.10	2,910.00	100.00	10,000.00	115.00	11,500.00
18	24" Restrained Type Field Lock Gaskets, CL 350	EA	340	608.00	206,720.00	560.00	190,400.00	485.00	164,900.00	660.00	224,400.00	500.00	170,000.00
19	Stub-Out for Colesburg Pump Station	LS	1	37,000.00	37,000.00	31,276.87	31,276.87	37,830.00	37,830.00	46,500.00	46,500.00	42,000.00	42,000.00
20	Stub-Out for Future Pump Station	EA	2	16,500.00	33,000.00	23,339.13	46,678.26	48,500.00	97,000.00	20,000.00	40,000.00	17,000.00	34,000.00
21	Final Pipeline Restoration												
	21.1 Final Grade/Seed/Fertilizer/Straw	LF	33,200	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00
	21.2 Final Grade/Seed/Fertilizer/ Erosion Control Blanket	LF	8,400	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00
22	Concrete Cut-Off Wall	LS	2	9,498.00	18,996.00	4,500.00	9,000.00	291.00	582.00	12,000.00	24,000.00	5,000.00	10,000.00
23	Creek Bank Rip-Rap	TON	60	65.00	3,900.00	45.00	2,700.00	25.22	1,513.20	60.00	3,600.00	100.00	6,000.00
24	Concrete Thrust Collar	LS	1	11,000.00	11,000.00	2,800.00	2,800.00	291.00	291.00	11,000.00	11,000.00	25,000.00	25,000.00
25	Mobilization, Bonds, Insurance & Project Sign	LS	1	208,000.00	208,000.00	65,000.00	65,000.00	10,000.00	10,000.00	125,000.00	125,000.00	200,000.00	200,000.00
26	Demobilization	LS	1	20,000.00	20,000.00	10,000.00	10,000.00	4,850.00	4,850.00	9,000.00	9,000.00	25,000.00	25,000.00
	TOTAL BASE BID				$6,981,898.00		$7,097,977.87		$7,226,376.10		$7,235,785.00		$7,250,035.00

BID TABULATIONS

KENVIRONS, INC.
452 Versailles Road
Frankfort, KY 40601

Owner: Hardin County Water District No. 2
Project: Contract 27: 24" Transmission Main
Bid Date: March 9, 2016 at 1:00 P.M. Local Time

Project No. 2007107

Base Bid				Horsley Construction, Inc. 368 Hagan Dennis Lane Hudson, KY 40145		Layne Heavy Civil, Inc. 4520 N. State Road 37 Orleans, IN 47452		Twin States Utilities & Excavation, Inc. P.O. Box 14 Mount Hermon, KY 42157		Bluegrass Stream, LLC 259 Three Mile Road Beattyville, KY 41311	
Item No.	Item Description	Unit	Quantity	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	24" D.I., Locked Joint, CL 350 Pipe	LF	6,090	$144.00	$876,960.00	$175.00	$1,065,750.00	$165.00	$1,004,850.00	$165.00	$1,004,850.00
2	24" D.I., P.O., CL 350 Pipe	LF	12,350	106.00	1,309,100.00	135.00	1,667,250.00	127.00	1,568,450.00	140.00	1,729,000.00
3	24" D.I., Locked Joint, CL 350 Pipe w/ Nitrile Gaskets	LF	10,964	169.00	1,852,916.00	170.00	1,863,880.00	170.00	1,863,880.00	181.35	1,988,321.40
4	24" D.I., P.O., CL 250 Pipe	LF	12,755	99.00	1,262,745.00	90.00	1,147,950.00	116.00	1,479,580.00	130.00	1,658,150.00
5	6" D.I., P.O. Pipe w/ Field Lock Gaskets	LF	400	65.00	26,000.00	48.00	19,200.00	70.00	28,000.00	50.00	20,000.00
6	Polyethylene Wrap for D.I. Pipe	LF	42,200	3.55	149,810.00	3.00	126,600.00	5.00	211,000.00	5.00	211,000.00
7	Bored 36" Steel Encasement for 24" D.I. Carrier Pipe	LF	1,100	566.50	623,150.00	510.00	561,000.00	425.00	467,500.00	755.00	830,500.00
8	Open Cut 36" Steel Encasement for 24" D.I. Carrier Pipe	LF	80	250.00	20,000.00	215.00	17,200.00	250.00	20,000.00	250.00	20,000.00
9	Trenched Stream Crossing	LF	400	500.00	200,000.00	50.00	20,000.00	185.00	74,000.00	500.00	200,000.00
10	24" CL 250 Butterfly Valve	EA	10	10,000.00	100,000.00	8,100.00	81,000.00	8,400.00	84,000.00	8,000.00	80,000.00
11	24" CL 250 Gate Valve w/ Spur Gearing	EA	5	24,000.00	120,000.00	18,900.00	94,500.00	21,000.00	105,000.00	28,000.00	140,000.00
12	6" Fire Hydrant	EA	9	8,000.00	72,000.00	7,120.00	64,080.00	7,400.00	66,600.00	10,000.00	90,000.00
13	8" Blow-Off Assembly	EA	5	7,000.00	35,000.00	5,950.00	29,750.00	6,200.00	31,000.00	7,000.00	35,000.00
14	Air Release Valve	EA	5	2,500.00	12,500.00	2,240.00	11,200.00	3,400.00	17,000.00	2,000.00	10,000.00
15	Leak Detection Assembly	EA	1	3,000.00	3,000.00	2,400.00	2,400.00	3,500.00	3,500.00	3,500.00	3,500.00
16	Erosion Prevention & Sediment Control	LS	1	27,000.00	27,000.00	45,000.00	45,000.00	45,000.00	45,000.00	10,000.00	10,000.00
17	Pavement Restoration										0.00
	17.1 Crushed Stone	LF	1,800	22.00	39,600.00	35.00	63,000.00	20.00	36,000.00	50.00	90,000.00
	17.2 Light Duty Bituminous	LF	260	100.00	26,000.00	80.00	20,800.00	40.00	10,400.00	100.00	26,000.00
	17.3 Heavy Duty Bituminous	LF	100	53.00	5,300.00	90.00	9,000.00	60.00	6,000.00	200.00	20,000.00
	17.4 Concrete Driveways	LF	100	53.00	5,300.00	60.00	6,000.00	60.00	6,000.00	50.00	5,000.00
18	24" Restrained Type Field Lock Gaskets, CL 350	EA	340	600.00	204,000.00	615.00	209,100.00	585.00	198,900.00	600.00	204,000.00
19	Stub-Out for Colesburg Pump Station	LS	1	40,000.00	40,000.00	40,000.00	40,000.00	46,000.00	46,000.00	50,000.00	50,000.00
20	Stub-Out for Future Pump Station	EA	2	15,000.00	30,000.00	23,500.00	47,000.00	20,000.00	40,000.00	20,000.00	40,000.00
21	Final Pipeline Restoration										0.00
	21.1 Final Grade/Seed/Fertilizer/Straw	LF	33,200	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00
	21.2 Final Grade/Seed/Fertilizer/ Erosion Control Blanket	LF	8,400	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00
22	Concrete Cut-Off Wall	LS	2	2,000.00	4,000.00	9,000.00	18,000.00	10,000.00	20,000.00	3,000.00	6,000.00
23	Creek Bank Rip-Rap	TON	60	50.00	3,000.00	85.00	5,100.00	50.00	3,000.00	45.00	2,700.00
24	Concrete Thrust Collar	LS	1	8,000.00	8,000.00	6,000.00	6,000.00	6,000.00	6,000.00	15,000.00	15,000.00
25	Mobilization, Bonds, Insurance & Project Sign	LS	1	117,000.00	117,000.00	58,000.00	58,000.00	100,000.00	100,000.00	265,684.00	265,684.00
26	Demobilization	LS	1	5,000.00	5,000.00	6,900.00	6,900.00	20,000.00	20,000.00	10,000.00	10,000.00
	TOTAL BASE BID				$7,268,981.00		$7,397,260.00		$7,653,260.00		$8,856,305.40

EXHIBIT 4

Final

Engineering

Report

KENVIRONS

FINAL ENGINEERING REPORT

Hardin County Water District No. 2

Elizabethtown, Kentucky

SUPPLEMENTAL WATER SUPPLY

PREPARED BY:

KENVIRONS, INC.
452 VERSAILLES ROAD
FRANKFORT, KENTUCKY 40601

STATE OF KENTUCKY
CARLOS F. MILLER
7384
LICENSED
PROFESSIONAL ENGINEER

4-5-16

PROJECT NO. 2007107

MARCH, 2016

Kenvirons, Inc.

Civil & Environmental Engineering and Laboratory Services

TABLE OF CONTENTS

1. INTRODUCTION

A Preliminary Engineering Report dated May, 2013 (PER) describes, in detail, the scope and need for a supplemental water supply and the system facilities to provide that water supply identified herein as the current project. An Addendum to the Preliminary Engineering Report dated March, 2016 describes additional projects to be included in the project funding. The reports are included herewith by reference.

Bids were received on March 9, 2016 for the initial project. The project was bid in two (2) contracts. The number of bids submitted for each contract are as follows:

Contract 26: Colesburg Pump Station (7)
Contract 27: 24-Inch Transmission Main (14)

The low bidder for Contract 26 was Dugan & Meyers Construction Co., Inc., Louisville, Kentucky in the amount of $1,574,624. The low bidder for Contract 27 was Hubert Excavating & Contracting, Salvisa, Kentucky in the amount of $6,000,000. A copy of the certified bid tabulations is included in the Appendix to this report.

The project funding, per the Rural Development Letter of Conditions, is $15,000,000. The funding sources available for this project are as follows:

Rural Development Loan	$5,000,000
BRAC Grant	5,000,000
KIA Grant	500,000
Applicant Contribution	4,500,000
Total per RD Letter of Conditions	$15,000,000

The difference between the sum of the construction bids ($7,574,624) and the initial opinion of probable construction cost ($11,989,000) is a positive $4,414,376. This 58% difference is apparently due to the bidding environment, i.e. the lack of projects being advertised for bids and the unusually low ductile iron pipe prices. The Revised Cost for the current project is shown in Table 1.

TABLE 1
Revised Cost for Current Project

Budget Item	R.D. Letter of Conditions	Revised Cost
Development	$11,989,000	$7,574,624
Land & Rights	50,000	135,000
Legal	60,000	60,000
Engineering	1,202,000	807,307(1)
Environmental	100,000	20,200(1)
Administrative	49,000	5,000
Interest	250,000	233,000
Contingencies	1,300,000	757,462
Totals	$15,000,000	$9,592,593

(1)See Table 2

TABLE 2
Engineering Costs

Item	Engineering	Environmental
Design (6.49%)	$491,593	
Construction Observation (3.15%)	238,601	
Preliminary Engineering Report	10,000	
Surveying, Plat Preparation	13,000	
Geotechnical Investigation	10,000	
Aerial Photography	4,025	
Water Supply Study	8,132	
LWC Interconnect Study	14,956	
Environmental Study		17,700
Archaeological Study		2,500
	$807,307	$20,200

2. UTILIZATION OF PROJECT FUNDS

Regarding the known and projected costs to date for the current project with a 10% development contingency, the project funding exceeds the project cost in the amount of $5,407,407 as shown in Table 1. The initial PER was amended to include additional projects to be funded with left over funds. A phased plan for utilizing the total project funding amount was developed. A summary of the costs for the current project and additional work described in the Addendum to the Preliminary Engineering Report to be included in the present project funding is shown in Table 3.

TABLE 3
SUMMARY OF PROJECT COSTS

Budget Item	Phase 1 Current Project	Phase 2 Additional Work	Phase 3 Additional Work	Total
Development	$7,574,624	$2,010,196	$2,284,000	$11,868,820
Land & Rights	135,000	75,000	---	210,000
Legal	60,000	10,000	14,191	84,191
Engineering	807,307	194,000	361,600	1,362,907
Environmental	20,200	13,000	10,000	43,200
Administrative	5,000	2,000	4,000	11,000
Interest	233,000	---	---	233,000
Contingency	757,462	201,020	228,400	1,186,882
	$9,592,593	$2,505,216	$2,902,191	$15,000,000

3. RECOMMENDATIONS

1. The bid amounts for the current project are in the acceptable range for the types of work involved. The contractor (Hubert Excavating and Contracting) that submitted the low bid for the pipeline has completed projects for Kenvirons in the past and is experienced in the type of work required for this project and is acceptable. The low bidder for the pump

station (Dugan Meyers Construction Co., Inc.) has been vetted and found to be experienced in the type of work required for this project and is acceptable.

2. It is recommended that Contract 26: Colesburg Pump Station be awarded to Dugan Meyers Construction Co., Inc. in the amount of $1,574,624.

3. It is recommended that Contract 27: 24-Inch Transmission Main be awarded to Hubert Excavating and Contracting in the amount of $6,000,000.

4. It is recommended to fund additional projects described in the Addendum to the Preliminary Engineering Report with the existing project funding sources.

5. Proceed with the application to the Public Service Commission for authority to construct the facilities and adjust the rates.

APPENDIX

BID TABULATIONS

KENVIRONS, INC.
452 Versailles Road
Frankfort, KY 40601

Owner: Hardin County Water District No. 2
Project: Contract 26: Colesburg Pump Station
Bid Date: March 9, 2016 at 1:00 P.M. Local Time

Project No. 2007107

Base Bid

				Dugan & Meyers Const. Co., Inc. 2700 River Green Circle Louisville, KY 40206		Howard Engineering & Const. Co. 1303 South Main Street London, KY 40741		Smith Contractors, Inc. P.O. Box 480 Lawrenceburg, KY 40342		PPMI Construction Company 5201 Middle Mt. Vernon Road Evansville, IN 47712	
Item No.	Item Description	Unit	Quantity	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	Pump Station, Complete & Operable	LS	1	$1,270,000.00	$1,270,000.00	$1,404,000.00	$1,404,000.00	$1,300,000.00	$1,300,000.00	$1,519,210.00	$1,519,210.00
2	Sitework	LS	1	64,000.00	64,000.00	32,000.00	32,000.00	50,000.00	50,000.00	22,400.00	22,400.00
3	Yard Piping	LS	1	37,000.00	37,000.00	75,000.00	75,000.00	150,000.00	150,000.00	27,800.00	27,800.00
4	Bituminous concrete paving per plan dimensions including 18" RCP & Junction Box	LS	1	46,000.00	46,000.00	41,000.00	41,000.00	35,000.00	35,000.00	34,600.00	34,600.00
5	Chain Link Fence	LF	468	31.00	14,508.00	33.00	15,444.00	30.00	14,040.00	31.73	* 14,849.64
6	Woven Wire Fence	LF	196	21.00	4,116.00	20.00	3,920.00	10.00	1,960.00	17.60	* 3,449.60
7	Mobilization, Bonds, Insurance & Project Sign	LS	1	47,000.00	47,000.00	54,000.00	54,000.00	150,000.00	150,000.00	35,150.00	35,150.00
8	Structural Fill	TON	1,000	37.00	37,000.00	40.00	40,000.00	20.00	20,000.00	75.00	75,000.00
9	Equipment Allowance	LS	1	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00
10	Fire Alarm System	LS	1	10,000.00	10,000.00	15,000.00	15,000.00	10,000.00	10,000.00	10,630.00	10,630.00
	TOTAL BASE BID				$1,574,624.00		$1,725,364.00		$1,776,000.00	*	$1,788,089.24

Base Bid

				Scott & Ritter, Inc. P.O. Box 749 Bowling Green, KY 42102		MAC Construction & Excavating, Inc. P.O. Box 6787 New Albany, IN 47151		Cleary Construction, Inc. 2006 Edmonton Road Tompkinsville, KY 42167	
Item No.	Item Description	Unit	Quantity	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	Pump Station, Complete & Operable	LS	1	$1,606,726.00	$1,606,726.00	$1,525,612.40	$1,525,612.40	$1,685,000.00	$1,685,000.00
2	Sitework	LS	1	37,660.00	37,660.00	100,000.00	100,000.00	115,000.00	115,000.00
3	Yard Piping	LS	1	12,110.00	12,110.00	60,000.00	60,000.00	115,000.00	115,000.00
4	Bituminous concrete paving per plan dimensions including 18" RCP & Junction Box	LS	1	35,640.00	35,640.00	45,000.00	45,000.00	37,000.00	37,000.00
5	Chain Link Fence	LF	468	32.00	14,976.00	30.81	14,419.08	36.00	16,848.00
6	Woven Wire Fence	LF	196	9.00	1,764.00	16.37	3,208.52	22.00	4,312.00
7	Mobilization, Bonds, Insurance & Project Sign	LS	1	38,000.00	38,000.00	50,000.00	50,000.00	57,000.00	57,000.00
8	Structural Fill	TON	1,000	5.00	5,000.00	41.00	41,000.00	30.00	30,000.00
9	Equipment Allowance	LS	1	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00
10	Fire Alarm System	LS	1	9,079.00	9,079.00	9,760.00	9,760.00	8,500.00	8,500.00
	TOTAL BASE BID				$1,805,955.00		$1,894,000.00		$2,113,660.00

STATE OF KENTUCKY
R. VAUGHN WILLIAMS
18628
LICENSED
PROFESSIONAL ENGINEER

* Denotes an arithmetic error was made on the Bids submitted. Values reported in the Bid Tabulation have been corrected based upon the unit price submitted.
The above is a true and complete tabulation of the Bids received by Hardin County Water District No. 2 at their office located at 360 Ring Road, Elizabethtown, KY on March 9, 2016 at 1:00 P.M. local time.

By: R. Vaughn Williams, P.E. 3/10/16
Date

BID TABULATIONS

ENVIRONS, INC.
52 Versailles Road
Frankfort, KY 40601

Owner: Hardin County Water District No. 2
Project: Contract 27: 24" Transmission Main
Bid Date: March 9, 2016 at 1:00 P.M. Local Time

Project No. 2007107

Base Bid				Hubert Excavating & Contracting 2590 Bondville Road Salvisa, KY 40372		MAC Construction & Excavating, Inc. P.O. Box 6787 New Albany, IN 47151		Infrastructure Systems, Inc. P.O. Box 148 Orleans, IN 47452		Merryman Excavation 1501 Lamb Road Woodstock, IL 60098		Tribute Contracting & Consultants, LLC 306 Little Solida Road South Point, OH 45680	
Item No.	Item Description	Unit	Quantity	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	24" D.I., Locked Joint, CL 350 Pipe	LF	6,090	$130.00	$791,700.00	$129.00	$785,610.00	$137.00	$834,330.00	$126.50	$770,385.00	$136.00	$828,240.00
2	24" D.I., P.O., CL 350 Pipe	LF	12,350	98.00	1,210,300.00	90.00	1,111,500.00	94.00	1,160,900.00	87.60	1,081,860.00	99.00	1,222,650.00
3	24" D.I., Locked Joint, CL 350 Pipe w/ Nitrile Gaskets	LF	10,964	136.00	1,491,104.00	134.00	1,469,176.00	134.00	1,469,176.00	129.00	1,414,356.00	143.00	1,567,852.00
4	24" D.I., P.O., CL 250 Pipe	LF	12,755	90.00	1,147,950.00	80.00	1,020,400.00	85.00	1,084,175.00	79.70	1,016,573.50	91.00	1,160,705.00
5	6" D.I., P.O. Pipe w/ Field Lock Gaskets	LF	400	38.00	15,200.00	50.00	20,000.00	30.00	12,000.00	30.60	12,240.00	36.50	14,600.00
6	Polyethylene Wrap for D.I. Pipe	LF	42,200	2.00	84,400.00	3.00	126,600.00	2.00	84,400.00	2.70	113,940.00	2.75	116,050.00
7	Bored 36" Steel Encasement for 24" D.I. Carrier Pipe	LF	1,100	415.00	456,500.00	380.00	418,000.00	525.00	577,500.00	709.87	780,857.00	490.00	539,000.00
8	Open Cut 36" Steel Encasement for 24" D.I. Carrier Pipe	LF	80	175.00	14,000.00	215.00	17,200.00	165.00	13,200.00	126.50	10,120.00	268.00	21,440.00
9	Trenched Stream Crossing	LF	400	50.00	20,000.00	210.00	84,000.00	115.00	46,000.00	184.00	73,600.00	127.00	50,800.00
10	24" CL 250 Butterfly Valve	EA	10	7,300.00	73,000.00	7,300.00	73,000.00	7,400.00	74,000.00	8,029.00	80,290.00	7,554.00	75,540.00
11	24" CL 250 Gate Valve w/ Spur Gearing	EA	5	17,000.00	85,000.00	19,000.00	95,000.00	17,500.00	87,500.00	18,950.00	94,750.00	21,183.00	105,915.00
12	6" Fire Hydrant	EA	9	10,000.00	90,000.00	7,200.00	64,800.00	7,500.00	67,500.00	6,546.00	58,914.00	6,175.00	55,575.00
13	8" Blow-Off Assembly	EA	5	9,800.00	49,000.00	6,700.00	33,500.00	6,500.00	32,500.00	5,036.00	25,180.00	5,187.00	25,935.00
14	Air Release Valve	EA	5	6,400.00	32,000.00	3,200.00	16,000.00	1,400.00	7,000.00	10,385.00	51,925.00	1,883.00	9,415.00
15	Leak Detection Assembly	EA	1	1,700.00	1,700.00	3,700.00	3,700.00	1,900.00	1,900.00	3,462.00	3,462.00	1,138.00	1,138.00
16	Erosion Prevention & Sediment Control	LS	1	15,000.00	15,000.00	100,000.00	100,000.00	55,000.00	55,000.00	148,210.00	148,210.00	20,000.00	20,000.00
17	Pavement Restoration												
	17.1 Crushed Stone	LF	1,800	20.00	36,000.00	6.00	10,800.00	25.00	45,000.00	30.10	54,180.00	25.00	45,000.00
	17.2 Light Duty Bituminous	LF	260	55.00	14,300.00	77.00	20,020.00	65.00	16,900.00	88.90	23,114.00	80.00	20,800.00
	17.3 Heavy Duty Bituminous	LF	100	75.00	7,500.00	106.00	10,600.00	120.00	12,000.00	290.00	29,000.00	130.00	13,000.00
	17.4 Concrete Driveways	LF	100	50.00	5,000.00	160.00	16,000.00	77.00	7,700.00	76.60	7,660.00	130.00	13,000.00
18	24" Restrained Type Field Lock Gaskets, CL 350	EA	340	460.00	156,400.00	515.00	175,100.00	250.00	85,000.00	513.00	174,420.00	620.00	210,800.00
19	Stub-Out for Colesburg Pump Station	LS	1	39,700.00	39,700.00	35,000.00	35,000.00	44,000.00	44,000.00	55,235.00	55,235.00	40,046.00	40,046.00
20	Stub-Out for Future Pump Station	EA	2	12,800.00	25,600.00	13,000.00	26,000.00	24,000.00	48,000.00	14,830.00	29,660.00	40,942.00	81,884.00
21	Final Pipeline Restoration												
	21.1 Final Grade/Seed/Fertilizer/Straw	LF	33,200	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00
	21.2 Final Grade/Seed/Fertilizer/ Erosion Control Blanket	LF	8,400	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00
22	Concrete Cut-Off Wall	LS	2	5,000.00	10,000.00	3,000.00	6,000.00	9,500.00	19,000.00	13,555.00	27,110.00	6,000.00	12,000.00
23	Creek Bank Rip-Rap	TON	60	25.00	1,500.00	57.00	3,420.00	70.00	4,200.00	95.60	5,736.00	60.00	3,600.00
24	Concrete Thrust Collar	LS	1	7,500.00	7,500.00	7,200.00	7,200.00	6,500.00	6,500.00	7,058.00	7,058.00	10,250.00	10,250.00
25	Mobilization, Bonds, Insurance & Project Sign	LS	1	23,046.00	23,046.00	170,000.00	170,000.00	185,000.00	185,000.00	216,900.00	216,900.00	144,175.00	144,175.00
26	Demobilization	LS	1	5,000.00	5,000.00	25,000.00	25,000.00	25,000.00	25,000.00	11,400.00	11,400.00	16,000.00	16,000.00
	TOTAL BASE BID				$6,000,000.00		$6,035,226.00		$6,196,981.00		$6,469,735.50		$6,517,010.00

The above is a true and complete tabulation of the Bids received by Hardin County Water District No. 2 at their office located at [illegible] Road, Elizabethtown, KY, on March 9, 2016 at 1:00 P.M. local time.

STATE OF KENTUCKY
R. VAUGHN WILLIAMS
18628
LICENSED
PROFESSIONAL ENGINEER

By: [signature] 3/10/16
R. Vaughn Williams, P.E. Date

BID TABULATIONS

ENVIRONS, INC.
52 Versailles Road
rankfort, KY 40601

Owner: Hardin County Water District No. 2
Project: Contract 27: 24" Transmission Main
Bid Date: March 9, 2016 at 1:00 P.M. Local Time

roject No. 2007107

Base Bid				Garney Companies, Inc. 200 Crutchfield Ave. Nashville, TN 37210		G&W Construction Co., Inc. 6730 Flemingsburg Road Morehead, KY 40351		Norris Brothers Excavating 1007 Rodgers Road Crossville, TN 38572		Cleary Construction, Inc. 2006 Edmonton Road Tompkinsville, KY 42167		Howell Contractors, Inc. 980 Helen Ruth Drive Ft. Wright, KY 41017	
Item No.	Item Description	Unit	Quantity	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	24" D.I., Locked Joint, CL 350 Pipe	LF	6,090	$136.00	$828,240.00	$148.96	$907,166.40	$155.20	$945,168.00	$152.00	$925,680.00	$160.00	$974,400.00
2	24" D.I., P.O., CL 350 Pipe	LF	12,350	118.00	1,457,300.00	117.12	1,446,432.00	143.56	1,772,966.00	112.00	1,383,200.00	117.00	1,444,950.00
3	24" D.I., Locked Joint, CL 350 Pipe w/ Nitrile Gaskets	LF	10,964	138.00	1,513,032.00	154.01	1,688,565.64	150.35	1,648,437.40	160.00	1,754,240.00	165.00	1,809,060.00
4	24" D.I., P.O., CL 250 Pipe	LF	12,755	92.00	1,173,460.00	95.85	1,222,566.75	106.70	1,360,958.50	103.00	1,313,765.00	95.00	1,211,725.00
5	6" D.I., P.O. Pipe w/ Field Lock Gaskets	LF	400	43.00	17,200.00	40.97	16,388.00	31.04	12,416.00	50.00	20,000.00	60.00	24,000.00
6	Polyethylene Wrap for D.I. Pipe	LF	42,200	2.00	84,400.00	5.62	237,164.00	1.94	81,868.00	4.00	168,800.00	2.00	84,400.00
7	Bored 36" Steel Encasement for 24" D.I. Carrier Pipe	LF	1,100	525.00	577,500.00	495.00	544,500.00	523.80	576,180.00	400.00	440,000.00	554.00	609,400.00
8	Open Cut 36" Steel Encasement for 24" D.I. Carrier Pipe	LF	80	300.00	24,000.00	250.00	20,000.00	378.30	30,264.00	270.00	21,600.00	250.00	20,000.00
9	Trenched Stream Crossing	LF	400	190.00	76,000.00	585.00	234,000.00	194.00	77,600.00	500.00	200,000.00	150.00	60,000.00
10	24" CL 250 Butterfly Valve	EA	10	8,850.00	88,500.00	6,958.26	69,582.60	7,760.00	77,600.00	8,200.00	82,000.00	7,800.00	78,000.00
11	24" CL 250 Gate Valve w/ Spur Gearing	EA	5	17,500.00	87,500.00	20,150.64	100,753.20	20,370.00	101,850.00	20,000.00	100,000.00	17,000.00	85,000.00
12	6" Fire Hydrant	EA	9	6,500.00	58,500.00	5,700.00	51,300.00	3,104.00	27,936.00	7,600.00	68,400.00	7,000.00	63,000.00
13	8" Blow-Off Assembly	EA	5	7,500.00	37,500.00	4,743.76	23,718.80	4,850.00	24,250.00	7,000.00	35,000.00	6,500.00	32,500.00
14	Air Release Valve	EA	5	3,800.00	19,000.00	2,557.07	12,785.35	1,746.00	8,730.00	2,300.00	11,500.00	2,500.00	12,500.00
15	Leak Detection Assembly	EA	1	2,750.00	2,750.00	2,000.00	2,000.00	970.00	970.00	2,000.00	2,000.00	1,500.00	1,500.00
16	Erosion Prevention & Sediment Control	LS	1	160,400.00	160,400.00	5,000.00	5,000.00	4,850.00	4,850.00	40,000.00	40,000.00	50,000.00	50,000.00
17	Pavement Restoration												
	17.1 Crushed Stone	LF	1,800	55.00	99,000.00	22.00	39,600.00	29.10	52,380.00	25.00	45,000.00	20.00	36,000.00
	17.2 Light Duty Bituminous	LF	260	65.00	16,900.00	50.00	13,000.00	29.10	7,566.00	75.00	19,500.00	100.00	26,000.00
	17.3 Heavy Duty Bituminous	LF	100	105.00	10,500.00	65.00	6,500.00	29.10	2,910.00	200.00	20,000.00	125.00	12,500.00
	17.4 Concrete Driveways	LF	100	200.00	20,000.00	75.00	7,500.00	29.10	2,910.00	100.00	10,000.00	115.00	11,500.00
18	24" Restrained Type Field Lock Gaskets, CL 350	EA	340	608.00	206,720.00	560.00	190,400.00	485.00	164,900.00	660.00	224,400.00	500.00	170,000.00
19	Stub-Out for Colesburg Pump Station	LS	1	37,000.00	37,000.00	31,276.87	31,276.87	37,830.00	37,830.00	46,500.00	46,500.00	42,000.00	42,000.00
20	Stub-Out for Future Pump Station	EA	2	16,500.00	33,000.00	23,339.13	46,678.26	48,500.00	97,000.00	20,000.00	40,000.00	17,000.00	34,000.00
21	Final Pipeline Restoration												
	21.1 Final Grade/Seed/Fertilizer/Straw	LF	33,200	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00
	21.2 Final Grade/Seed/Fertilizer/ Erosion Control Blanket	LF	8,400	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00
22	Concrete Cut-Off Wall	LS	2	9,498.00	18,996.00	4,500.00	9,000.00	291.00	582.00	12,000.00	24,000.00	5,000.00	10,000.00
23	Creek Bank Rip-Rap	TON	60	65.00	3,900.00	45.00	2,700.00	25.22	1,513.20	60.00	3,600.00	100.00	6,000.00
24	Concrete Thrust Collar	LS	1	11,000.00	11,000.00	2,800.00	2,800.00	291.00	291.00	11,000.00	11,000.00	25,000.00	25,000.00
25	Mobilization, Bonds, Insurance & Project Sign	LS	1	208,000.00	208,000.00	65,000.00	65,000.00	10,000.00	10,000.00	125,000.00	125,000.00	200,000.00	200,000.00
26	Demobilization	LS	1	20,000.00	20,000.00	10,000.00	10,000.00	4,850.00	4,850.00	9,000.00	9,000.00	25,000.00	25,000.00
	TOTAL BASE BID				$6,981,898.00		$7,097,977.87		$7,226,376.10		$7,235,785.00		$7,250,035.00

BID TABULATIONS

(ENVIRONS, INC.
152 Versailles Road
Frankfort, KY 40601

Owner: Hardin County Water District No. 2
Project: Contract 27: 24" Transmission Main
Bid Date: March 9, 2016 at 1:00 P.M. Local Time

Project No. 2007107

Base Bid				Horsley Construction, Inc. 368 Hagan Dennis Lane Hudson, KY 40145		Layne Heavy Civil, Inc. 4520 N. State Road 37 Orleans, IN 47452		Twin States Utilities & Excavation, Inc. P.O. Box 14 Mount Hermon, KY 42157		Bluegrass Stream, LLC 259 Three Mile Road Beattyville, KY 41311	
Item No.	Item Description	Unit	Quantity	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	24" D.I., Locked Joint, CL 350 Pipe	LF	6,090	$144.00	$876,960.00	$175.00	$1,065,750.00	$165.00	$1,004,850.00	$165.00	$1,004,850.00
2	24" D.I., P.O., CL 350 Pipe	LF	12,350	106.00	1,309,100.00	135.00	1,667,250.00	127.00	1,568,450.00	140.00	1,729,000.00
3	24" D.I., Locked Joint, CL 350 Pipe w/ Nitrile Gaskets	LF	10,964	169.00	1,852,916.00	170.00	1,863,880.00	170.00	1,863,880.00	181.35	1,988,321.40
4	24" D.I., P.O., CL 250 Pipe	LF	12,755	99.00	1,262,745.00	90.00	1,147,950.00	116.00	1,479,580.00	130.00	1,658,150.00
5	6" D.I., P.O. Pipe w/ Field Lock Gaskets	LF	400	65.00	26,000.00	48.00	19,200.00	70.00	28,000.00	50.00	20,000.00
6	Polyethylene Wrap for D.I. Pipe	LF	42,200	3.55	149,810.00	3.00	126,600.00	5.00	211,000.00	5.00	211,000.00
7	Bored 36" Steel Encasement for 24" D.I. Carrier Pipe	LF	1,100	566.50	623,150.00	510.00	561,000.00	425.00	467,500.00	755.00	830,500.00
8	Open Cut 36" Steel Encasement for 24" D.I. Carrier Pipe	LF	80	250.00	20,000.00	215.00	17,200.00	250.00	20,000.00	250.00	20,000.00
9	Trenched Stream Crossing	LF	400	500.00	200,000.00	50.00	20,000.00	185.00	74,000.00	500.00	200,000.00
10	24" CL 250 Butterfly Valve	EA	10	10,000.00	100,000.00	8,100.00	81,000.00	8,400.00	84,000.00	8,000.00	80,000.00
11	24" CL 250 Gate Valve w/ Spur Gearing	EA	5	24,000.00	120,000.00	18,900.00	94,500.00	21,000.00	105,000.00	28,000.00	140,000.00
12	6" Fire Hydrant	EA	9	8,000.00	72,000.00	7,120.00	64,080.00	7,400.00	66,600.00	10,000.00	90,000.00
13	8" Blow-Off Assembly	EA	5	7,000.00	35,000.00	5,950.00	29,750.00	6,200.00	31,000.00	7,000.00	35,000.00
14	Air Release Valve	EA	5	2,500.00	12,500.00	2,240.00	11,200.00	3,400.00	17,000.00	2,000.00	10,000.00
15	Leak Detection Assembly	EA	1	3,000.00	3,000.00	2,400.00	2,400.00	3,500.00	3,500.00	3,500.00	3,500.00
16	Erosion Prevention & Sediment Control	LS	1	27,000.00	27,000.00	45,000.00	45,000.00	45,000.00	45,000.00	10,000.00	10,000.00
17	Pavement Restoration										0.00
	17.1 Crushed Stone	LF	1,800	22.00	39,600.00	35.00	63,000.00	20.00	36,000.00	50.00	90,000.00
	17.2 Light Duty Bituminous	LF	260	100.00	26,000.00	80.00	20,800.00	40.00	10,400.00	100.00	26,000.00
	17.3 Heavy Duty Bituminous	LF	100	53.00	5,300.00	90.00	9,000.00	60.00	6,000.00	200.00	20,000.00
	17.4 Concrete Driveways	LF	100	53.00	5,300.00	60.00	6,000.00	60.00	6,000.00	50.00	5,000.00
18	24" Restrained Type Field Lock Gaskets, CL 350	EA	340	600.00	204,000.00	615.00	209,100.00	585.00	198,900.00	600.00	204,000.00
19	Stub-Out for Colesburg Pump Station	LS	1	40,000.00	40,000.00	40,000.00	40,000.00	46,000.00	46,000.00	50,000.00	50,000.00
20	Stub-Out for Future Pump Station	EA	2	15,000.00	30,000.00	23,500.00	47,000.00	20,000.00	40,000.00	20,000.00	40,000.00
21	Final Pipeline Restoration										0.00
	21.1 Final Grade/Seed/Fertilizer/Straw	LF	33,200	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00
	21.2 Final Grade/Seed/Fertilizer/ Erosion Control Blanket	LF	8,400	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00
22	Concrete Cut-Off Wall	LS	2	2,000.00	4,000.00	9,000.00	18,000.00	10,000.00	20,000.00	3,000.00	6,000.00
23	Creek Bank Rip-Rap	TON	60	50.00	3,000.00	85.00	5,100.00	50.00	3,000.00	45.00	2,700.00
24	Concrete Thrust Collar	LS	1	8,000.00	8,000.00	6,000.00	6,000.00	6,000.00	6,000.00	15,000.00	15,000.00
25	Mobilization, Bonds, Insurance & Project Sign	LS	1	117,000.00	117,000.00	58,000.00	58,000.00	100,000.00	100,000.00	265,684.00	265,684.00
26	Demobilization	LS	1	5,000.00	5,000.00	6,900.00	6,900.00	20,000.00	20,000.00	10,000.00	10,000.00
	TOTAL BASE BID				$7,268,981.00		$7,397,260.00		$7,653,260.00		$8,856,305.40

Rural Development Fee Calculator

Construction Cost...............................	$7,574,624.00
Enter "T" for Treatment Facilities or Enter "X" for other project types	X

CALCULATED PERCENTAGES & FEES

Construction Cost	Engineering Design	Construction Observation
Percentage	6.49%	3.15%
Fee	$491,593.10	$238,600.66

FEE SCHEDULES

Construction Cost	*Engineering Design*	*Construction Observation*
$0	*14.00%*	*13.00%*
$100,000	*14.00%*	*13.00%*
$200,000	*12.20%*	*10.40%*
$300,000	*11.25%*	*8.80%*
$400,000	*10.70%*	*8.00%*
$500,000	*10.30%*	*7.40%*
$600,000	*9.73%*	*6.80%*
$700,000	*9.45%*	*6.40%*
$800,000	*9.20%*	*6.00%*
$900,000	*9.00%*	*5.80%*
$1,000,000	*8.85%*	*5.60%*
$2,000,000	*7.65%*	*4.60%*
$3,000,000	*7.22%*	*4.00%*
$4,000,000	*6.90%*	*3.70%*
$5,000,000	*6.75%*	*3.50%*
$6,000,000	*6.65%*	*3.32%*
$7,000,000	*6.55%*	*3.20%*
$8,000,000	*6.45%*	*3.12%*
$9,000,000	*6.40%*	*3.05%*
$100,000,000	*6.40%*	*3.05%*
$7,000,000	*6.55%*	*3.20%*
17	*17*	*17*
$8,000,000	*6.45%*	*3.12%*

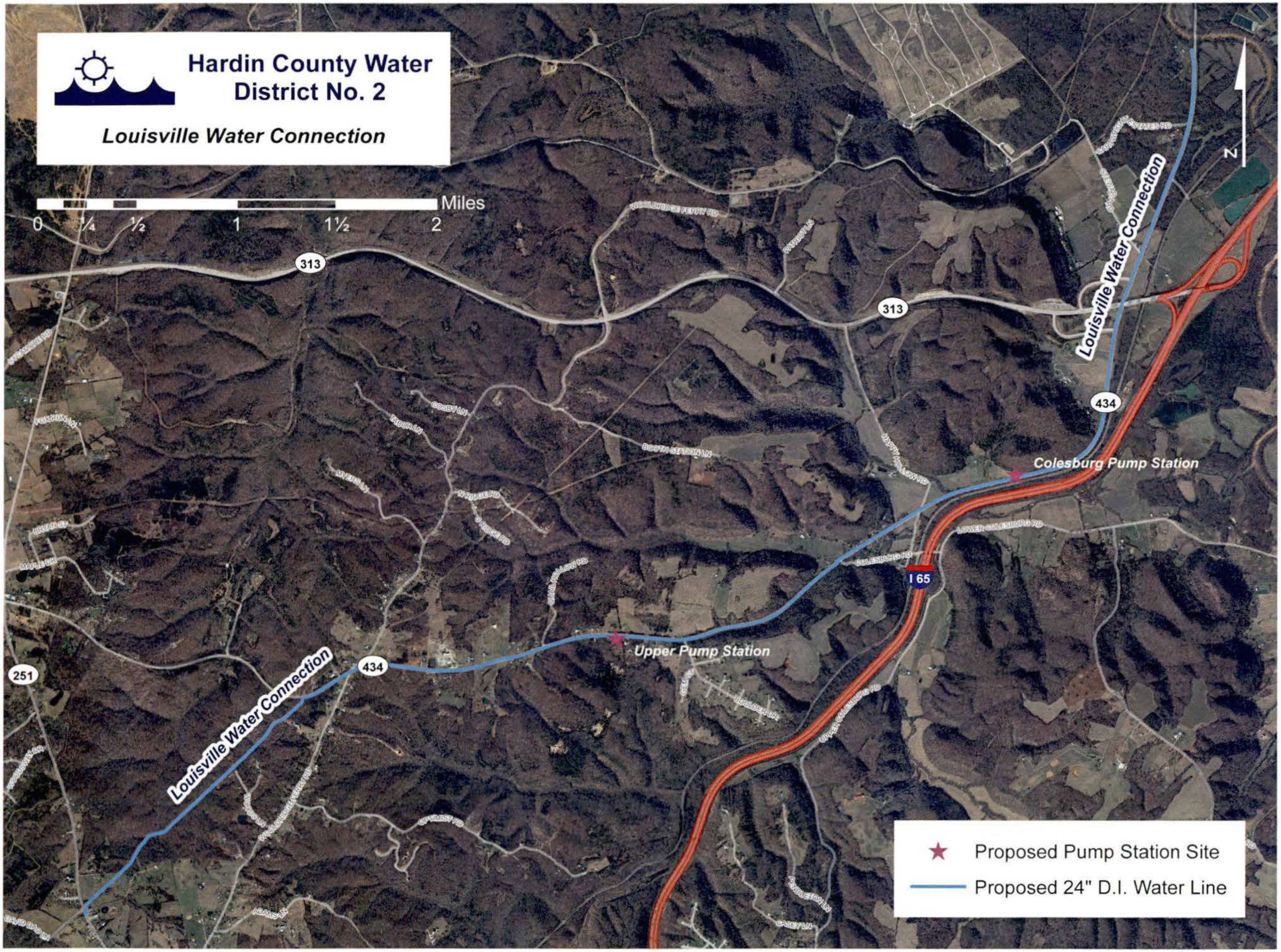
EXHIBIT 5

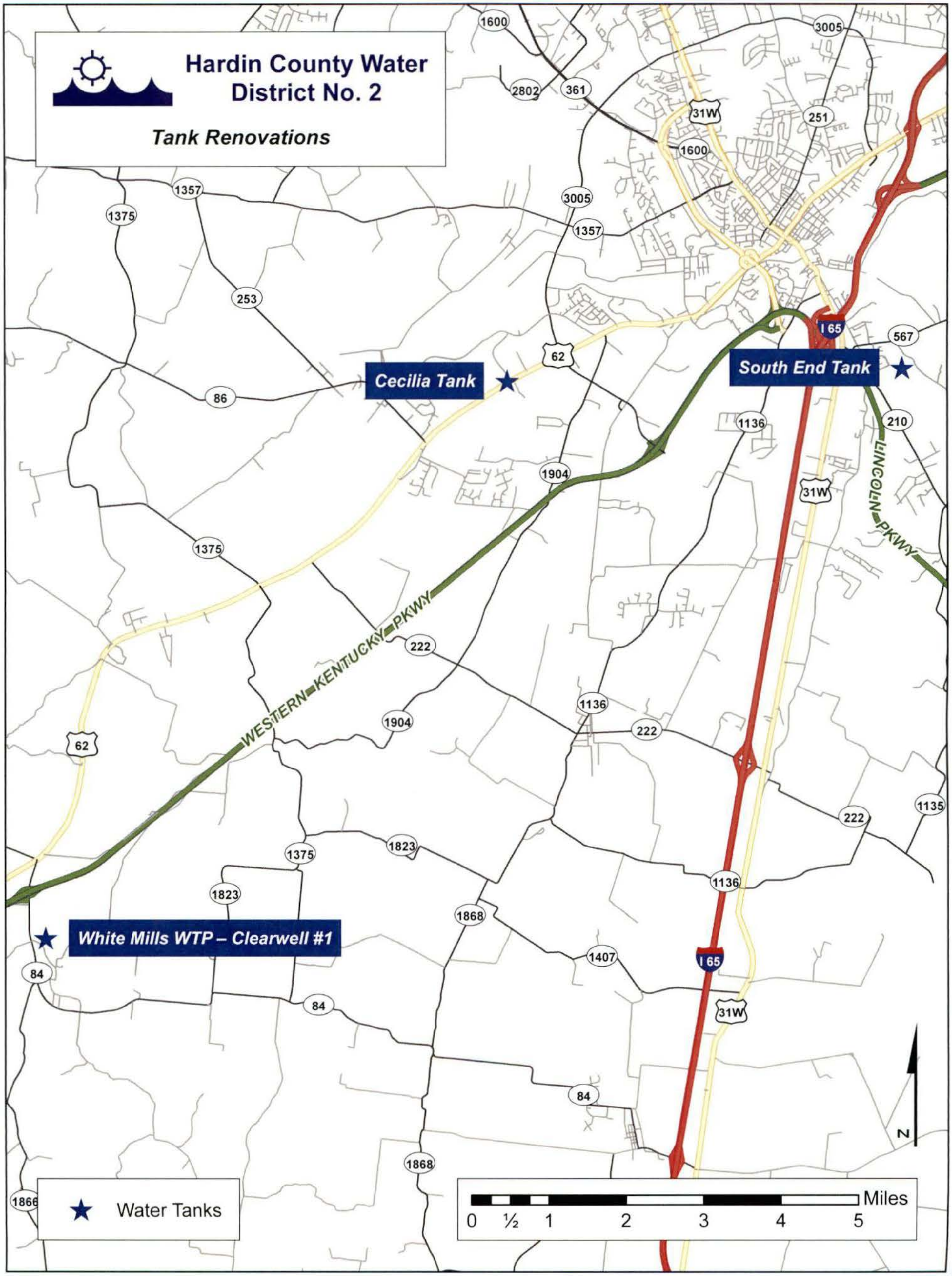
Maps

1. **Colesburg Pump Station**
   24-Inch Water Transmission Main
   Upper Pump Station

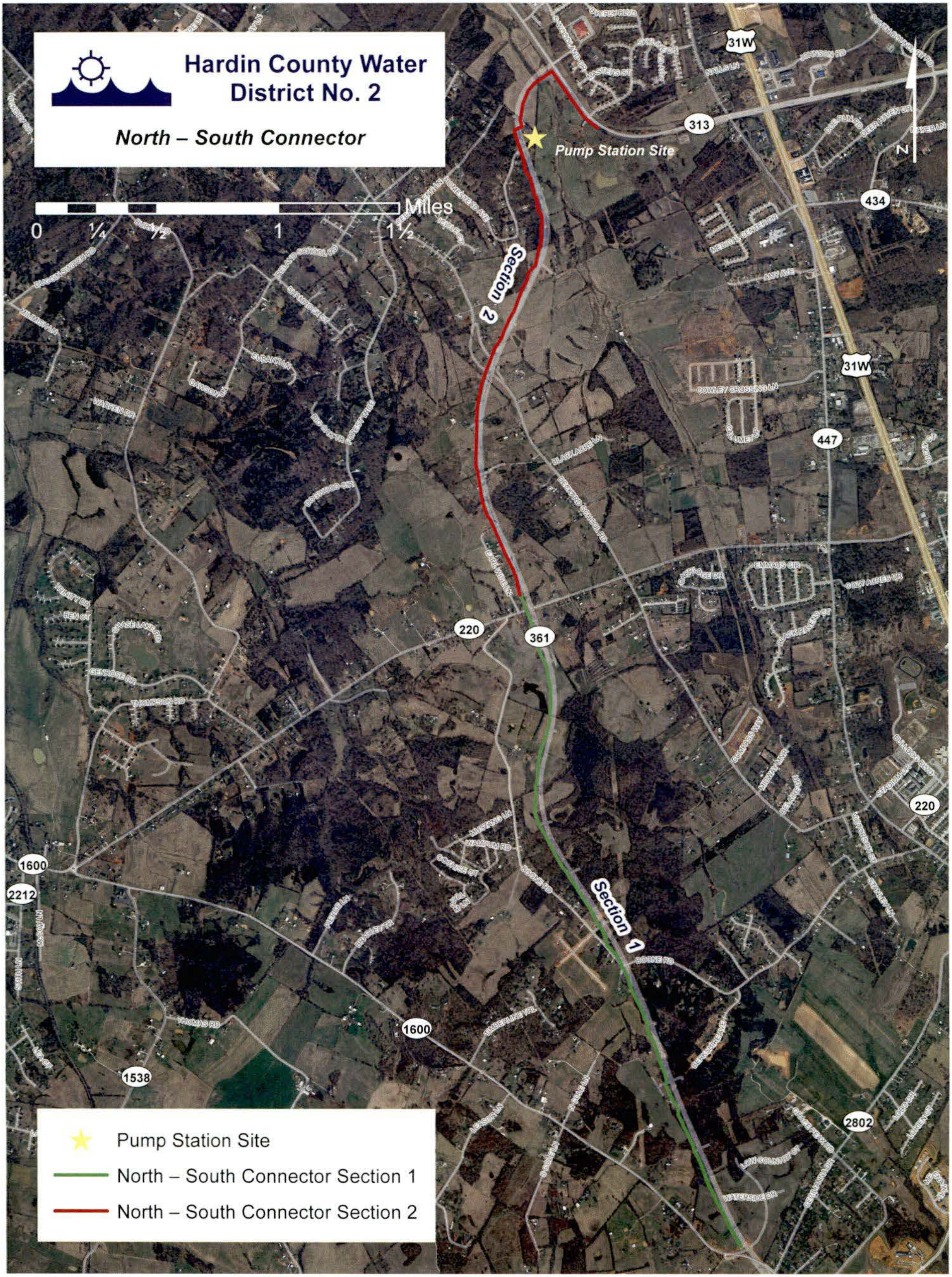
2. **Tank Renovations**

3. **North-South Connector – Section 2**
   North-South Pump Station


Hardin County Water District No. 2
Louisville Water Connection
Miles
0 ¼ ½ 1 1½ 2
N
313
313
434
434
251
I 65
Louisville Water Connection
Louisville Water Connection
Colesburg Pump Station
Upper Pump Station
Proposed Pump Station Site
Proposed 24" D.I. Water Line



Hardin County Water District No. 2
Tank Renovations
Cecilia Tank
South End Tank
White Mills WTP – Clearwell #1
Water Tanks
WESTERN KENTUCKY PKWY
LINCOLN PKWY
Miles
0 ½ 1 2 3 4 5
N
1600
3005
2802
361
31W
251
1357
1375
253
62
86
567
210
1136
1904
222
1135
1823
1868
1407
84
I 65
1866



Hardin County Water District No. 2
North – South Connector
Pump Station Site
Miles
0
1/4
1/2
1
1 1/2
Section 2
Section 1
31W
313
434
447
220
361
1600
2212
1538
2802
Pump Station Site
North – South Connector Section 1
North – South Connector Section 2

EXHIBIT 6

Original Application Contains

Compact Disk of

Plans & Specifications

EXHIBIT 7

CERTIFIED BID TABULATIONS

BID TABULATIONS

KENVIRONS, INC.
452 Versailles Road
Frankfort, KY 40601

Owner: Hardin County Water District No. 2
Project: Contract 26: Colesburg Pump Station
Bid Date: March 9, 2016 at 1:00 P.M. Local Time

Project No. 2007107

Base Bid				Dugan & Meyers Const. Co., Inc. 2700 River Green Circle Louisville, KY 40206		Howard Engineering & Const. Co. 1303 South Main Street London, KY 40741		Smith Contractors, Inc. P.O. Box 480 Lawrenceburg, KY 40342		PPMI Construction Company 5201 Middle Mt. Vernon Road Evansville, IN 47712	
Item No.	Item Description	Unit	Quantity	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	Pump Station, Complete & Operable	LS	1	$1,270,000.00	$1,270,000.00	$1,404,000.00	$1,404,000.00	$1,300,000.00	$1,300,000.00	$1,519,210.00	$1,519,210.00
2	Sitework	LS	1	64,000.00	64,000.00	32,000.00	32,000.00	50,000.00	50,000.00	22,400.00	22,400.00
3	Yard Piping	LS	1	37,000.00	37,000.00	75,000.00	75,000.00	150,000.00	150,000.00	27,800.00	27,800.00
4	Bituminous concrete paving per plan dimensions including 18" RCP & Junction Box	LS	1	46,000.00	46,000.00	41,000.00	41,000.00	35,000.00	35,000.00	34,600.00	34,600.00
5	Chain Link Fence	LF	468	31.00	14,508.00	33.00	15,444.00	30.00	14,040.00	31.73 *	14,849.64
6	Woven Wire Fence	LF	196	21.00	4,116.00	20.00	3,920.00	10.00	1,960.00	17.60 *	3,449.60
7	Mobilization, Bonds, Insurance & Project Sign	LS	1	47,000.00	47,000.00	54,000.00	54,000.00	150,000.00	150,000.00	35,150.00	35,150.00
8	Structural Fill	TON	1,000	37.00	37,000.00	40.00	40,000.00	20.00	20,000.00	75.00	75,000.00
9	Equipment Allowance	LS	1	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00
10	Fire Alarm System	LS	1	10,000.00	10,000.00	15,000.00	15,000.00	10,000.00	10,000.00	10,630.00	10,630.00
	TOTAL BASE BID				$1,574,624.00		$1,725,364.00		$1,776,000.00	*	$1,788,089.24

Base Bid				Scott & Ritter, Inc. P.O. Box 749 Bowling Green, KY 42102		MAC Construction & Excavating, Inc. P.O. Box 6787 New Albany, IN 47151		Cleary Construction, Inc. 2006 Edmonton Road Tompkinsville, KY 42167	
Item No.	Item Description	Unit	Quantity	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	Pump Station, Complete & Operable	LS	1	$1,606,726.00	$1,606,726.00	$1,525,612.40	$1,525,612.40	$1,685,000.00	$1,685,000.00
2	Sitework	LS	1	37,660.00	37,660.00	100,000.00	100,000.00	115,000.00	115,000.00
3	Yard Piping	LS	1	12,110.00	12,110.00	60,000.00	60,000.00	115,000.00	115,000.00
4	Bituminous concrete paving per plan dimensions including 18" RCP & Junction Box	LS	1	35,640.00	35,640.00	45,000.00	45,000.00	37,000.00	37,000.00
5	Chain Link Fence	LF	468	32.00	14,976.00	30.81	14,419.08	36.00	16,848.00
6	Woven Wire Fence	LF	196	9.00	1,764.00	16.37	3,208.52	22.00	4,312.00
7	Mobilization, Bonds, Insurance & Project Sign	LS	1	38,000.00	38,000.00	50,000.00	50,000.00	57,000.00	57,000.00
8	Structural Fill	TON	1,000	5.00	5,000.00	41.00	41,000.00	30.00	30,000.00
9	Equipment Allowance	LS	1	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00
10	Fire Alarm System	LS	1	9,079.00	9,079.00	9,760.00	9,760.00	8,500.00	8,500.00
	TOTAL BASE BID				$1,805,955.00		$1,894,000.00		$2,113,660.00

STATE OF KENTUCKY
R. VAUGHN WILLIAMS
18628
LICENSED
PROFESSIONAL ENGINEER

* Denotes an arithmetic error was made on the Bids submitted. Values reported in the Bid Tabulation have been corrected based upon the unit price submitted.
The above is a true and complete tabulation of the Bids received by Hardin County Water District No. 2 at their office located at 360 Ring Road, Elizabethtown, KY on March 9, 2016 at 1:00 P.M. local time.

By: R. Vaughn Williams, P.E. 3/10/16
Date

F:\PROJECTS\2007\2007107\Contract 26 Bid Tab

BID TABULATIONS

KENVIRONS, INC.
452 Versailles Road
Frankfort, KY 40601

Owner: Hardin County Water District No. 2
Project: Contract 27: 24" Transmission Main
Bid Date: March 9, 2016 at 1:00 P.M. Local Time

Project No. 2007107

Base Bid				Hubert Excavating & Contracting, 2590 Bondville Road, Salvisa, KY 40372		MAC Construction & Excavating, Inc., P.O. Box 6787, New Albany, IN 47151		Infrastructure Systems, Inc., P.O. Box 148, Orleans, IN 47452		Merryman Excavation, 1501 Lamb Road, Woodstock, IL 60098		Tribute Contracting & Consultants, LLC, 306 Little Solida Road, South Point, OH 45680	
Item No.	Item Description	Unit	Quantity	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	24" D.I., Locked Joint, CL 350 Pipe	LF	6,090	$130.00	$791,700.00	$129.00	$785,610.00	$137.00	$834,330.00	$126.50	$770,385.00	$136.00	$828,240.00
2	24" D.I., P.O., CL 350 Pipe	LF	12,350	98.00	1,210,300.00	90.00	1,111,500.00	94.00	1,160,900.00	87.60	1,081,860.00	99.00	1,222,650.00
3	24" D.I., Locked Joint, CL 350 Pipe w/ Nitrile Gaskets	LF	10,964	136.00	1,491,104.00	134.00	1,469,176.00	134.00	1,469,176.00	129.00	1,414,356.00	143.00	1,567,852.00
4	24" D.I., P.O., CL 250 Pipe	LF	12,755	90.00	1,147,950.00	80.00	1,020,400.00	85.00	1,084,175.00	79.70	1,016,573.50	91.00	1,160,705.00
5	6" D.I., P.O. Pipe w/ Field Lock Gaskets	LF	400	38.00	15,200.00	50.00	20,000.00	30.00	12,000.00	30.60	12,240.00	36.50	14,600.00
6	Polyethylene Wrap for D.I. Pipe	LF	42,200	2.00	84,400.00	3.00	126,600.00	2.00	84,400.00	2.70	113,940.00	2.75	116,050.00
7	Bored 36" Steel Encasement for 24" D.I. Carrier Pipe	LF	1,100	415.00	456,500.00	380.00	418,000.00	525.00	577,500.00	709.87	780,857.00	490.00	539,000.00
8	Open Cut 36" Steel Encasement for 24" D.I. Carrier Pipe	LF	80	175.00	14,000.00	215.00	17,200.00	165.00	13,200.00	126.50	10,120.00	268.00	21,440.00
9	Trenched Stream Crossing	LF	400	50.00	20,000.00	210.00	84,000.00	115.00	46,000.00	184.00	73,600.00	127.00	50,800.00
10	24" CL 250 Butterfly Valve	EA	10	7,300.00	73,000.00	7,300.00	73,000.00	7,400.00	74,000.00	8,029.00	80,290.00	7,554.00	75,540.00
11	24" CL 250 Gate Valve w/ Spur Gearing	EA	5	17,000.00	85,000.00	19,000.00	95,000.00	17,500.00	87,500.00	18,950.00	94,750.00	21,183.00	105,915.00
12	6" Fire Hydrant	EA	9	10,000.00	90,000.00	7,200.00	64,800.00	7,500.00	67,500.00	6,546.00	58,914.00	6,175.00	55,575.00
13	8" Blow-Off Assembly	EA	5	9,800.00	49,000.00	6,700.00	33,500.00	6,500.00	32,500.00	5,036.00	25,180.00	5,187.00	25,935.00
14	Air Release Valve	EA	5	6,400.00	32,000.00	3,200.00	16,000.00	1,400.00	7,000.00	10,385.00	51,925.00	1,883.00	9,415.00
15	Leak Detection Assembly	EA	1	1,700.00	1,700.00	3,700.00	3,700.00	1,900.00	1,900.00	3,462.00	3,462.00	1,138.00	1,138.00
16	Erosion Prevention & Sediment Control	LS	1	15,000.00	15,000.00	100,000.00	100,000.00	55,000.00	55,000.00	148,210.00	148,210.00	20,000.00	20,000.00
17	Pavement Restoration												
	17.1 Crushed Stone	LF	1,800	20.00	36,000.00	6.00	10,800.00	25.00	45,000.00	30.10	54,180.00	25.00	45,000.00
	17.2 Light Duty Bituminous	LF	260	55.00	14,300.00	77.00	20,020.00	65.00	16,900.00	88.90	23,114.00	80.00	20,800.00
	17.3 Heavy Duty Bituminous	LF	100	75.00	7,500.00	106.00	10,600.00	120.00	12,000.00	290.00	29,000.00	130.00	13,000.00
	17.4 Concrete Driveways	LF	100	50.00	5,000.00	160.00	16,000.00	77.00	7,700.00	76.60	7,660.00	130.00	13,000.00
18	24" Restrained Type Field Lock Gaskets, CL 350	EA	340	460.00	156,400.00	515.00	175,100.00	250.00	85,000.00	513.00	174,420.00	620.00	210,800.00
19	Stub-Out for Colesburg Pump Station	LS	1	39,700.00	39,700.00	35,000.00	35,000.00	44,000.00	44,000.00	55,235.00	55,235.00	40,046.00	40,046.00
20	Stub-Out for Future Pump Station	EA	2	12,800.00	25,600.00	13,000.00	26,000.00	24,000.00	48,000.00	14,830.00	29,660.00	40,942.00	81,884.00
21	Final Pipeline Restoration												
	21.1 Final Grade/Seed/Fertilizer/Straw	LF	33,200	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00
	21.2 Final Grade/Seed/Fertilizer/ Erosion Control Blanket	LF	8,400	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00
22	Concrete Cut-Off Wall	LS	2	5,000.00	10,000.00	3,000.00	6,000.00	9,500.00	19,000.00	13,555.00	27,110.00	6,000.00	12,000.00
23	Creek Bank Rip-Rap	TON	60	25.00	1,500.00	57.00	3,420.00	70.00	4,200.00	95.60	5,736.00	60.00	3,600.00
24	Concrete Thrust Collar	LS	1	7,500.00	7,500.00	7,200.00	7,200.00	6,500.00	6,500.00	7,058.00	7,058.00	10,250.00	10,250.00
25	Mobilization, Bonds, Insurance & Project Sign	LS	1	23,046.00	23,046.00	170,000.00	170,000.00	185,000.00	185,000.00	216,900.00	216,900.00	144,175.00	144,175.00
26	Demobilization	LS	1	5,000.00	5,000.00	25,000.00	25,000.00	25,000.00	25,000.00	11,400.00	11,400.00	16,000.00	16,000.00
	TOTAL BASE BID				$6,000,000.00		$6,035,226.00		$6,196,981.00		$6,469,735.50		$6,517,010.00

The above is a true and complete tabulation of the Bids received by Hardin County Water District No. 2 at their office located at [illegible] Ring Road, Elizabethtown, KY, on March 9, 2016 at 1:00 P.M. local time.

By: [signature] 3/10/16
R. Vaughn Williams, P.E. Date

STATE OF KENTUCKY
R. VAUGHN
WILLIAMS
18628
LICENSED
PROFESSIONAL ENGINEER

F:\PROJECTS\2007\2007107\Contract 27 Bid Tab

BID TABULATIONS

KENVIRONS, INC.
452 Versailles Road
Frankfort, KY 40601

Owner: Hardin County Water District No. 2
Project: Contract 27: 24" Transmission Main
Bid Date: March 9, 2016 at 1:00 P.M. Local Time

Project No. 2007107

Base Bid				Garney Companies, Inc. 200 Crutchfield Ave. Nashville, TN 37210		G&W Construction Co., Inc. 6730 Flemingsburg Road Morehead, KY 40351		Norris Brothers Excavating 1007 Rodgers Road Crossville, TN 38572		Cleary Construction, Inc. 2006 Edmonton Road Tompkinsville, KY 42167		Howell Contractors, Inc. 980 Helen Ruth Drive Ft. Wright, KY 41017	
Item No.	Item Description	Unit	Quantity	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	24" D.I., Locked Joint, CL 350 Pipe	LF	6,090	$136.00	$828,240.00	$148.96	$907,166.40	$155.20	$945,168.00	$152.00	$925,680.00	$160.00	$974,400.00
2	24" D.I., P.O., CL 350 Pipe	LF	12,350	118.00	1,457,300.00	117.12	1,446,432.00	143.56	1,772,966.00	112.00	1,383,200.00	117.00	1,444,950.00
3	24" D.I., Locked Joint, CL 350 Pipe w/ Nitrile Gaskets	LF	10,964	138.00	1,513,032.00	154.01	1,688,565.64	150.35	1,648,437.40	160.00	1,754,240.00	165.00	1,809,060.00
4	24" D.I., P.O., CL 250 Pipe	LF	12,755	92.00	1,173,460.00	95.85	1,222,566.75	106.70	1,360,958.50	103.00	1,313,765.00	95.00	1,211,725.00
5	6" D.I., P.O. Pipe w/ Field Lock Gaskets	LF	400	43.00	17,200.00	40.97	16,388.00	31.04	12,416.00	50.00	20,000.00	60.00	24,000.00
6	Polyethylene Wrap for D.I. Pipe	LF	42,200	2.00	84,400.00	5.62	237,164.00	1.94	81,868.00	4.00	168,800.00	2.00	84,400.00
7	Bored 36" Steel Encasement for 24" D.I. Carrier Pipe	LF	1,100	525.00	577,500.00	495.00	544,500.00	523.80	576,180.00	400.00	440,000.00	554.00	609,400.00
8	Open Cut 36" Steel Encasement for 24" D.I. Carrier Pipe	LF	80	300.00	24,000.00	250.00	20,000.00	378.30	30,264.00	270.00	21,600.00	250.00	20,000.00
9	Trenched Stream Crossing	LF	400	190.00	76,000.00	585.00	234,000.00	194.00	77,600.00	500.00	200,000.00	150.00	60,000.00
10	24" CL 250 Butterfly Valve	EA	10	8,850.00	88,500.00	6,958.26	69,582.60	7,760.00	77,600.00	8,200.00	82,000.00	7,800.00	78,000.00
11	24" CL 250 Gate Valve w/ Spur Gearing	EA	5	17,500.00	87,500.00	20,150.64	100,753.20	20,370.00	101,850.00	20,000.00	100,000.00	17,000.00	85,000.00
12	6" Fire Hydrant	EA	9	6,500.00	58,500.00	5,700.00	51,300.00	3,104.00	27,936.00	7,600.00	68,400.00	7,000.00	63,000.00
13	8" Blow-Off Assembly	EA	5	7,500.00	37,500.00	4,743.76	23,718.80	4,850.00	24,250.00	7,000.00	35,000.00	6,500.00	32,500.00
14	Air Release Valve	EA	5	3,800.00	19,000.00	2,557.07	12,785.35	1,746.00	8,730.00	2,300.00	11,500.00	2,500.00	12,500.00
15	Leak Detection Assembly	EA	1	2,750.00	2,750.00	2,000.00	2,000.00	970.00	970.00	2,000.00	2,000.00	1,500.00	1,500.00
16	Erosion Prevention & Sediment Control	LS	1	160,400.00	160,400.00	5,000.00	5,000.00	4,850.00	4,850.00	40,000.00	40,000.00	50,000.00	50,000.00
17	Pavement Restoration												
	17.1 Crushed Stone	LF	1,800	55.00	99,000.00	22.00	39,600.00	29.10	52,380.00	25.00	45,000.00	20.00	36,000.00
	17.2 Light Duty Bituminous	LF	260	65.00	16,900.00	50.00	13,000.00	29.10	7,566.00	75.00	19,500.00	100.00	26,000.00
	17.3 Heavy Duty Bituminous	LF	100	105.00	10,500.00	65.00	6,500.00	29.10	2,910.00	200.00	20,000.00	125.00	12,500.00
	17.4 Concrete Driveways	LF	100	200.00	20,000.00	75.00	7,500.00	29.10	2,910.00	100.00	10,000.00	115.00	11,500.00
18	24" Restrained Type Field Lock Gaskets, CL 350	EA	340	608.00	206,720.00	560.00	190,400.00	485.00	164,900.00	660.00	224,400.00	500.00	170,000.00
19	Stub-Out for Colesburg Pump Station	LS	1	37,000.00	37,000.00	31,276.87	31,276.87	37,830.00	37,830.00	46,500.00	46,500.00	42,000.00	42,000.00
20	Stub-Out for Future Pump Station	EA	2	16,500.00	33,000.00	23,339.13	46,678.26	48,500.00	97,000.00	20,000.00	40,000.00	17,000.00	34,000.00
21	Final Pipeline Restoration												
	21.1 Final Grade/Seed/Fertilizer/Straw	LF	33,200	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00
	21.2 Final Grade/Seed/Fertilizer/ Erosion Control Blanket	LF	8,400	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00
22	Concrete Cut-Off Wall	LS	2	9,498.00	18,996.00	4,500.00	9,000.00	291.00	582.00	12,000.00	24,000.00	5,000.00	10,000.00
23	Creek Bank Rip-Rap	TON	60	65.00	3,900.00	45.00	2,700.00	25.22	1,513.20	60.00	3,600.00	100.00	6,000.00
24	Concrete Thrust Collar	LS	1	11,000.00	11,000.00	2,800.00	2,800.00	291.00	291.00	11,000.00	11,000.00	25,000.00	25,000.00
25	Mobilization, Bonds, Insurance & Project Sign	LS	1	208,000.00	208,000.00	65,000.00	65,000.00	10,000.00	10,000.00	125,000.00	125,000.00	200,000.00	200,000.00
26	Demobilization	LS	1	20,000.00	20,000.00	10,000.00	10,000.00	4,850.00	4,850.00	9,000.00	9,000.00	25,000.00	25,000.00
	TOTAL BASE BID				$6,981,898.00		$7,097,977.87		$7,226,376.10		$7,235,785.00		$7,250,035.00

BID TABULATIONS

KENVIRONS, INC.
452 Versailles Road
Frankfort, KY 40601

Owner: Hardin County Water District No. 2
Project: Contract 27: 24" Transmission Main
Bid Date: March 9, 2016 at 1:00 P.M. Local Time

Project No. 2007107

Base Bid				Horsley Construction, Inc. 368 Hagan Dennis Lane Hudson, KY 40145		Layne Heavy Civil, Inc. 4520 N. State Road 37 Orleans, IN 47452		Twin States Utilities & Excavation, Inc. P.O. Box 14 Mount Hermon, KY 42157		Bluegrass Stream, LLC 259 Three Mile Road Beattyville, KY 41311	
Item No.	Item Description	Unit	Quantity	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost	Unit Cost	Cost
1	24" D.I., Locked Joint, CL 350 Pipe	LF	6,090	$144.00	$876,960.00	$175.00	$1,065,750.00	$165.00	$1,004,850.00	$165.00	$1,004,850.00
2	24" D.I., P.O., CL 350 Pipe	LF	12,350	106.00	1,309,100.00	135.00	1,667,250.00	127.00	1,568,450.00	140.00	1,729,000.00
3	24" D.I., Locked Joint, CL 350 Pipe w/ Nitrile Gaskets	LF	10,964	169.00	1,852,916.00	170.00	1,863,880.00	170.00	1,863,880.00	181.35	1,988,321.40
4	24" D.I., P.O., CL 250 Pipe	LF	12,755	99.00	1,262,745.00	90.00	1,147,950.00	116.00	1,479,580.00	130.00	1,658,150.00
5	6" D.I., P.O. Pipe w/ Field Lock Gaskets	LF	400	65.00	26,000.00	48.00	19,200.00	70.00	28,000.00	50.00	20,000.00
6	Polyethylene Wrap for D.I. Pipe	LF	42,200	3.55	149,810.00	3.00	126,600.00	5.00	211,000.00	5.00	211,000.00
7	Bored 36" Steel Encasement for 24" D.I. Carrier Pipe	LF	1,100	566.50	623,150.00	510.00	561,000.00	425.00	467,500.00	755.00	830,500.00
8	Open Cut 36" Steel Encasement for 24" D.I. Carrier Pipe	LF	80	250.00	20,000.00	215.00	17,200.00	250.00	20,000.00	250.00	20,000.00
9	Trenched Stream Crossing	LF	400	500.00	200,000.00	50.00	20,000.00	185.00	74,000.00	500.00	200,000.00
10	24" CL 250 Butterfly Valve	EA	10	10,000.00	100,000.00	8,100.00	81,000.00	8,400.00	84,000.00	8,000.00	80,000.00
11	24" CL 250 Gate Valve w/ Spur Gearing	EA	5	24,000.00	120,000.00	18,900.00	94,500.00	21,000.00	105,000.00	28,000.00	140,000.00
12	6" Fire Hydrant	EA	9	8,000.00	72,000.00	7,120.00	64,080.00	7,400.00	66,600.00	10,000.00	90,000.00
13	8" Blow-Off Assembly	EA	5	7,000.00	35,000.00	5,950.00	29,750.00	6,200.00	31,000.00	7,000.00	35,000.00
14	Air Release Valve	EA	5	2,500.00	12,500.00	2,240.00	11,200.00	3,400.00	17,000.00	2,000.00	10,000.00
15	Leak Detection Assembly	EA	1	3,000.00	3,000.00	2,400.00	2,400.00	3,500.00	3,500.00	3,500.00	3,500.00
16	Erosion Prevention & Sediment Control	LS	1	27,000.00	27,000.00	45,000.00	45,000.00	45,000.00	45,000.00	10,000.00	10,000.00
17	Pavement Restoration										0.00
	17.1 Crushed Stone	LF	1,800	22.00	39,600.00	35.00	63,000.00	20.00	36,000.00	50.00	90,000.00
	17.2 Light Duty Bituminous	LF	260	100.00	26,000.00	80.00	20,800.00	40.00	10,400.00	100.00	26,000.00
	17.3 Heavy Duty Bituminous	LF	100	53.00	5,300.00	90.00	9,000.00	60.00	6,000.00	200.00	20,000.00
	17.4 Concrete Driveways	LF	100	53.00	5,300.00	60.00	6,000.00	60.00	6,000.00	50.00	5,000.00
18	24" Restrained Type Field Lock Gaskets, CL 350	EA	340	600.00	204,000.00	615.00	209,100.00	585.00	198,900.00	600.00	204,000.00
19	Stub-Out for Colesburg Pump Station	LS	1	40,000.00	40,000.00	40,000.00	40,000.00	46,000.00	46,000.00	50,000.00	50,000.00
20	Stub-Out for Future Pump Station	EA	2	15,000.00	30,000.00	23,500.00	47,000.00	20,000.00	40,000.00	20,000.00	40,000.00
21	Final Pipeline Restoration										0.00
	21.1 Final Grade/Seed/Fertilizer/Straw	LF	33,200	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00	2.00	66,400.00
	21.2 Final Grade/Seed/Fertilizer/ Erosion Control Blanket	LF	8,400	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00	3.00	25,200.00
22	Concrete Cut-Off Wall	LS	2	2,000.00	4,000.00	9,000.00	18,000.00	10,000.00	20,000.00	3,000.00	6,000.00
23	Creek Bank Rip-Rap	TON	60	50.00	3,000.00	85.00	5,100.00	50.00	3,000.00	45.00	2,700.00
24	Concrete Thrust Collar	LS	1	8,000.00	8,000.00	6,000.00	6,000.00	6,000.00	6,000.00	15,000.00	15,000.00
25	Mobilization, Bonds, Insurance & Project Sign	LS	1	117,000.00	117,000.00	58,000.00	58,000.00	100,000.00	100,000.00	265,684.00	265,684.00
26	Demobilization	LS	1	5,000.00	5,000.00	6,900.00	6,900.00	20,000.00	20,000.00	10,000.00	10,000.00
	TOTAL BASE BID				$7,268,981.00		$7,397,260.00		$7,653,260.00		$8,856,305.40

EXHIBIT 8

Engineer's Recommendation of Award Letter

KENVIRONS

Kenvirons, Inc. 452 Versailles Road • Frankfort, KY 40601 • Phone: (502) 695-4357 • Fax: (502) 695-4363
Civil & Environmental Engineering and Laboratory Services

April 5, 2016

Rev. Mike Bell
Hardin County Water District No. 2
P.O. Box 970
Elizabethtown, Kentucky 42701

RE: Supplemental Water Supply

Dear Rev. Bell:

A Preliminary Engineering Report (PER) dated May, 2013 describes, in detail, the scope and need for the referenced project. The report is included herewith by reference.

Bids were received on March 9, 2016. The project was bid in two (2) contracts. The number of bids submitted for each contract are as follows:

Contract 26: Colesburg Pump Station (7)
Contract 27: 24-Inch Transmission Main (14)

The low bidder for Contract 26 was Dugan & Meyers Construction Co., Inc., Louisville, Kentucky in the amount of $1,574,624. The low bidder for Contract 27 was Hubert Excavating & Contracting, Salvisa, Kentucky in the amount of $6,000,000. A copy of the certified bid tabulations is attached.

The construction bids for this project are within the project funding budget. A revised project cost breakdown for the current project is as follows:

Budget Item	**R.D. Letter of Conditions**	**Revised Current Project Cost**
Development	$11,989,000	$7,574,624
Land & Rights	50,000	135,000
Legal	60,000	60,000
Engineering	1,202,000	807,307
Environmental	100,000	20,200
Administrative	49,000	5,000
Interest	250,000	233,000
Contingencies	1,300,000	757,462
	$15,000,000	$9,592,593

KENVIRONS

RECOMMENDATIONS

1. The bid amounts for the initial project are in the acceptable range for the types of work involved. The contractor (Hubert Excavating and Contracting) that submitted the low bid for the pipeline has completed projects for Kenvirons in the past and is experienced in the type of work required for this project and is acceptable. The low bidder for the pump station (Dugan Meyers Construction Co., Inc.) has been vetted and found to be experienced in the type of work required for this project and is acceptable.

2. It is recommended that Contract 26: Colesburg Pump Station be awarded to Dugan Meyers Construction Co., Inc. in the amount of $1,574,624.

3. It is recommended that Contract 27: 24-Inch Transmission Main be awarded to Hubert Excavating and Contracting in the amount of $6,000,000.

4. Proceed with the application to the Public Service Commission for authority to construct the facilities and adjust the rates.

5. Regarding the known and projected costs, to date, for the current project with a 10% development contingency, the project funding exceeds the project cost in the amount of $5,407,407 as shown in the revised current project cost. When the current project is substantially complete and the amount of remaining monies can be more precisely determined, the remaining monies should be used to install additional improvements and reinforcements in the system as described in an Addendum to the PER dated March, 2016. The Addendum is included herewith by reference.

Respectfully Submitted,

R. Vaughn Williams, P.E.
President

USDA

United States Department of Agriculture

Exhibit 9

Rural Development

Kentucky State Office

771 Corporate Drive,
Suite 200
Lexington, KY
40503

Voice 859.224.7300
Fax 859.224.7425
TTY 859.224.7422

April 6, 2016

SUBJECT: Hardin County Water District No. 2
Supplemental Water Supply
Contract Award Concurrence

TO: Area Office
Elizabethtown, Kentucky

Based on the bids received and the recommendation of the consulting engineer, Rural Development concurs in the award of subject contract to the low bidder on Contract 26, Dugan and Meyers Construction Co., Inc., in the amount of $1,574,624, and the low bidder on Contract 27, Hubert Excavating and Contracting, in the amount of $6,000,000.

If you have any questions, please contact Julie Anderson, State Engineer, at (859) 224-7348.

Julie Anderson

THOMAS G. FERN
State Director
Rural Development

cc: Kenvirons, Inc.
Frankfort, Kentucky

EXHIBIT 10

CERTIFICATE OF CHAIRMAN OF HARDIN COUNTY WATER DISTRICT NO. 2. AS TO STATEMENT REQUIRED BY SECTION 2(6) OF 807 KAR 5:069

I, **Michael L. Bell**, hereby certify that I am the duly qualified and acting Chairman of the Hardin County Water District No. 2 (the "District") and that said District, in cooperation with Kenvirons, Inc., Frankfort, Kentucky, the Engineers for the District (the "Engineers"), is in the process of arranging for the finance and construction of extensions, additions and improvements to the waterworks system of the District (the "Project").

Based on information furnished to me by said Engineers for the District, I hereby certify as follows:

1. That the proposed plans and specifications for the Project have been designed to meet the minimum construction and operating requirements set out in 807 KAR 5:066 Section 4 (3) and (4); Section 5 (1); Sections 6 and 7; Section 8 (1) through (3); Section 9 (1) and Section 10.

2. That all other state approvals and/or permits have already been obtained.

3. That the water rates proposed by the District and which are set forth in the attached Application filed with the Public Service Commission of Kentucky are contemplated to produce the total revenue requirements recommended in the Engineering Reports prepared by such Engineers and filed with the Public Service Commission.

4. That it is now contemplated that construction of the Project will begin on or about June 1, 2016. Construction of Phase 1 will end on or about April 1, 2017. Construction of Phase 2 will end on or about December 31, 2017. Construction of Phase 3 will end on or about April 30, 2019.

IN TESTIMONY WHEREOF, witness my signature this April 8, 2016.

HARDIN COUNTY WATER DISTRICT NO. 2

BY: Michael L. Bell

Michael L. Bell, Chairman

STATE OF KENTUCKY)
) SS:
COUNTY OF HARDIN)

Subscribed and sworn to before me by **Michael L. Bell**, Chairman of the Board of Commissioners of the Hardin County Water District No. 2, on this April 8, 2016.

Damon R. Talley

NOTARY PUBLIC, STATE AT LARGE

Notary ID: 534422

MY COMMISSION EXPIRES: 6-9-19

1338715

NOTICE OF PROPOSED ADJUSTMENT OF WATER RATES

HARDIN COUNTY WATER DISTRICT NO. 2

Notice is hereby given, pursuant to KRS 278.023 and 807 KAR 5:069, Section 3, that the Hardin County Water District No. 2 (the "District") plans to file, on or about April 8, 2016, an application with the Public Service Commission of Kentucky (the “PSC”) to seek: (1) a Certificate of Public Convenience and Necessity to construct certain water infrastructure improvements necessary to obtain a supplemental supply of potable water from the Louisville Water Company near the Rolling Fork River in Hardin County, Kentucky, including constructing approximately 42,200 linear feet of 24-inch diameter water transmission line and other major additions and improvements to its water system; (2) authorization to issue certain securities, in an amount not to exceed $5,000,000, which will be purchased by U. S. Department of Agriculture, Rural Development (the “RD”); and (3) an adjustment of its monthly water service rates as follows:

Monthly Water Rates

Meter Size	Current Rates	Proposed Rates	Dollar Increase	Percent Increase
5/8 X 3/4 Inch Connection				
First 2,000 gallons	$ 18.50 (Minimum Bill)	$ 18.50 (Minimum Bill)	$ 0.00	00.0%
Next 498,000 gallons	5.15 per 1,000 gallons	5.15 per 1,000 gallons	0.00	00.0%
Over 500,000 gallons	2.10 per 1,000 gallons	2.90 per 1,000 gallons	0.80	38.1%
1 Inch Connection				
First 5,000 gallons	$ 33.95 (Minimum Bill)	$ 33.95 (Minimum Bill)	$ 0.00	00.0%
Next 495,000 gallons	5.15 per 1,000 gallons	5.15 per 1,000 gallons	0.00	00.0%
Over 500,000 gallons	2.10 per 1,000 gallons	2.90 per 1,000 gallons	0.80	38.1%

1-1/2 Inch Connection				
First 10,000 gallons	$ 59.70 (Minimum Bill)	$ 59.70 (Minimum Bill)	$ 0.00	00.0%
Next 490,000 gallons	5.15 per 1,000 gallons	5.15 per 1,000 gallons	0.00	00.0%
Over 500,000 gallons	2.10 per 1,000 gallons	2.90 per 1,000 gallons	0.80	38.1%
2 Inch Connection				
First 20,000 gallons	$ 111.20 (Minimum Bill)	$ 111.20 (Minimum Bill)	$ 0.00	00.0%
Next 480,000 gallons	5.15 per 1,000 gallons	5.15 per 1,000 gallons	0.00	00.0%
Over 500,000 gallons	2.10 per 1,000 gallons	2.90 per 1,000 gallons	0.80	38.1%
3 Inch Connection				
First 30,000 gallons	$ 162.70 (Minimum Bill)	$ 162.70 (Minimum Bill)	$ 0.00	00.0%
Next 470,000 gallons	5.15 per 1,000 gallons	5.15 per 1,000 gallons	0.00	00.0%
Over 500,000 gallons	2.10 per 1,000 gallons	2.90 per 1,000 gallons	0.80	38.1%
4 Inch Connection				
First 50,000 gallons	$ 265.70 (Minimum Bill)	$ 265.70 (Minimum Bill)	$ 0.00	00.0%
Next 450,000 gallons	5.15 per 1,000 gallons	5.15 per 1,000 gallons	0.00	00.0%
Over 500,000 gallons	2.10 per 1,000 gallons	2.90 per 1,000 gallons	0.80	38.1%
6 Inch Connection				
First 100,000 gallons	$ 523.20 (Minimum Bill)	$ 523.20 (Minimum Bill)	$ 0.00	00.0%
Next 400,000 gallons	5.15 per 1,000 gallons	5.15 per 1,000 gallons	0.00	00.0%
Over 500,000 gallons	2.10 per 1,000 gallons	2.90 per 1,000 gallons	0.80	38.1%
8 Inch Connection				
First 150,000 gallons	$ 780.70 (Minimum Bill)	$ 780.70 (Minimum Bill)	$ 0.00	00.0%
Next 350,000 gallons	5.15 per 1,000 gallons	5.15 per 1,000 gallons	0.00	00.0%
Over 500,000 gallons	2.10 per 1,000 gallons	2.90 per 1,000 gallons	0.80	38.1%

10 Inch Connection

First 250,000 gallons	$ 1,295.70 (Minimum Bill)	$ 1,295.70 (Minimum Bill)	$ 0.00	00.0%
Next 250,000 gallons	5.15 per 1,000 gallons	5.15 per 1,000 gallons	0.00	00.0%
Over 500,000 gallons	2.10 per 1,000 gallons	2.90 per 1,000 gallons	0.80	38.1%

12 Inch Connection

First 400,000 gallons	$ 2,068.20 (Minimum Bill)	$ 2,068.20 (Minimum Bill)	$ 0.00	00.0%
Next 100,000 gallons	5.15 per 1,000 gallons	5.15 per 1,000 gallons	0.00	00.0%
Over 500,000 gallons	2.10 per 1,000 gallons	2.90 per 1,000 gallons	0.80	38.1%

Effect Upon Average Bill. The proposed rate adjustment will not affect the bill of any customer whose monthly usage is less than 500,000 gallons per month. The District has three (3) customer classifications: (1) residential; (2) commercial; and (3) industrial. The rate schedule shown above applies to all three (3) customer classifications. The District's residential customers use an average of 4,500 gallons per month. Therefore, the average bill of residential customers will not increase if the proposed rates are approved by the PSC. The District's commercial customers use an average of 14,600 gallons per month. Therefore, the average bill of commercial customers will not increase if the proposed rates are approved by the PSC. The District's industrial customers use an average of 847,300 gallons per month. The monthly bill for an industrial customer using an average of 847,300 gallons per month will increase from $3,312.53 to $3,590.37. This is an increase of $277.84 or 8.4%.

Effective Date. The District proposes to place the rates into effect for all water used on and after July 1, 2017.

Examination Of Application. Any person may examine the District's application during normal business hours at the following locations: (1) Hardin County Water District No. 2 Customer Service Center, 360 Ring Road, Elizabethtown, Kentucky (Telephone 270-737-1056); (2) Public Service Commission's offices, 211 Sower Boulevard, Frankfort, Kentucky, Monday through Friday, 8:00 a.m. to 4:30 p.m.; (3) through the District's website at www.hardincountywater2.org; or (4) through the PSC's website at http://psc.ky.gov.

Comments Regarding Application. Comments regarding the application may be submitted to the Public Service Commission through its website at http://psc.ky.gov or by mail to Public Service Commission, PO Box 615, Frankfort, Kentucky 40602. You may contact the Public Service Commission at 502-564-3940.

Rates Required By RD. The proposed rates are required under the terms of an agreement between the District and the U. S. Department of Agriculture, Rural Development (the "RD") under which RD will lend the District up to $5,000,000. KRS 278.023 does not grant the PSC any discretionary authority to modify or reject any portion of the agreement between RD and the District or to defer the issuance of all necessary orders to implement the terms of that agreement.

Project Description. The RD loan proceeds will be used in conjunction with various grants totaling $5,500,000 and a contribution by the District in the amount of $4,500,000 to finance the Louisville Water Company Interconnection Project (the "LWC Project"). This project will provide the District with a supplemental supply of potable water and involves the installation of approximately 42,200 linear feet of 24-inch diameter ductile iron pipe transmission line and associated appurtenances, a pump station, and other major water infrastructure improvements described in the engineering reports prepared by Kenvirons, Inc.

Customers In Former Elizabethtown Water Service Area. The proposed rates will not alter or change the rates for customers receiving water service in the former Elizabethtown Water Service Area. These customers will continue to pay the rates that the PSC approved in its Order of October 23, 2014 in Case No. 2014-00289. On and after July 1, 2017, the same rate schedule for water service will apply to all District customers, including customers in the former Elizabethtown Water Service Area.

HARDIN COUNTY WATER DISTRICT NO. 2

EXHIBIT 12

WATER RATES

FORMER ELIZABETHTOWN WATER SERVICE AREA

Usage (Gallons)	Effective 11-1-14	Effective 7-1-15	Effective 7-1-16	Effective 7-1-17
First 2,000	$ 12.80	$ 14.70	$ 16.60	$ 18.50
Next 3,000	$ 4.85	$ 4.95	$ 5.05	$ 5.15
Next 5,000	$ 4.65	$ 4.85	$ 5.05	$ 5.15
Next 490,000	$ 4.40	$ 4.65	$ 4.90	$ 5.15
Over 500,000	$ 2.60	$ 2.70	$ 2.80	$ 2.90

NOTES:

1. The above rates are applicable for the customers receiving water service in the former Elizabethtown Water Service Area.
2. The above rates are for water bills rendered after the dates shown above.
3. The Rate Schedule shown above is contained in City of Elizabethtown Ordinance No. 07-2014 enacted on February 18, 2014.
4. The Rate Schedule shown above was approved by the PSC in Case No. 2014-00289 by Order dated October 23, 2014.

APPENDIX

APPENDIX TO AN ORDER OF THE KENTUCUYT PUBLIC SERVICE COMMISSION IN CASE NO. 2014-00289 DATED OCT 23 2014

The following water rates and charges are prescribed for the customers in the area served by Hardin County Water District No. 2's Elizabethtown Service Area for water service rendered on and after November 1, 2014. All other Hardin County Water District rates and charges that are not specifically mentioned herein shall remain the same as those in effect under authority of the Commission prior to the effective date of this Order.

Monthly Water Rates
Phase 1
Elizabethtown Service Area
Effective from 11/01/2014 through 06/30/15

First	2,000	gallons	$12.80	Minimum bill
Next	3,000	gallons	4.85	per 1,000 gallons
Next	5,000	gallons	4.65	per 1,000 gallons
Next	490,000	gallons	4.40	per 1,000 gallons
All Over	500,000	gallons	2.60	per 1,000 gallons

Phase 2
Elizabethtown Service Area
Effective from 07/01/2015 through 06/30/16

First	2,000	gallons	$14.70	Minimum bill
Next	3,000	gallons	4.95	per 1,000 gallons
Next	5,000	gallons	4.85	per 1,000 gallons
Next	490,000	gallons	4.65	per 1,000 gallons
All Over	500,000	gallons	2.70	per 1,000 gallons

Phase 3
Elizabethtown Service Area
Effective from 07/01/2016 through 06/30/17

First	2,000	gallons	$16.60	Minimum bill
Next	3,000	gallons	5.05	per 1,000 gallons
Next	5,000	gallons	5.05	per 1,000 gallons
Next	490,000	gallons	4.90	per 1,000 gallons
All Over	500,000	gallons	2.80	per 1,000 gallons

Phase 4
Elizabethtown Service Area
Effective 07/01/2017

First	2,000	gallons	$18.50	Minimum bill
Next	3,000	gallons	5.15	per 1,000 gallons
Next	5,000	gallons	5.15	per 1,000 gallons
Next	490,000	gallons	5.15	per 1,000 gallons
All Over	500,000	gallons	2.90	per 1,000 gallons