

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

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**Witness: Lance Williams**

41. Refer to "Engineering Feasibility Study Report for Supplying Kentucky American Water's Northern District Distribution System," Appendix E. Explain why no increase in KRS II's sludge disposal costs occurs if KRS II supplies water to the Northern Division.

**Response:**

The expected increase to KRS II's sludge disposal costs if KRS II supplies water to the Northern Division will be negligible. KRS II currently has a permit to dispose the sludge generated at KRS II on property owned by KAW. As such, the only increase in sludge disposal costs will be in the costs associated with transporting and spreading of the sludge, which are minimal.

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**Witness: Lance Williams**

42. List all water storage tanks serving the Northern Division and their storage capacity, age, type, and current condition.

**Response:**

The following table lists the storage tanks serving the Northern Division and their storage capacity, age, type, and current condition.

<b>Tank Name</b>	<b>Storage Capacity (gallons)</b>	<b>Year Constructed</b>	<b>Type</b>	<b>Condition</b>
Fairgrounds	400,000	1989	Steel Elevated	Poor
Perry Street	100,000	1959	Steel Elevated	Good
Monterey	117,000	1995	Glass Lined Stand Pipe	Good
Bromley	117,000	1993	Glass Lined Stand Pipe	Good
Wheatley	133,000	1999	Glass Lined Stand Pipe	Good
New Columbus	229,000	2003	Glass Lined Stand Pipe	Good

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**Witness: Linda Bridwell**

43. At pages 4 and 5 of its Application Kentucky-American states: “[T]he project will be initially funded by available funds from a previous financing or short-term bank borrowings.”
- a. Identify the Commission proceeding in which the previous financing referenced by Kentucky-American was authorized. State the effective interest rate, the debt term, list the construction projects Kentucky-American originally intended to fund with the financing, identify the projects that were not financed, and provide the amount of the previous financing remaining that Kentucky-American will use to fund this project.
  - b. State the amount of short-term bank borrowings that will be used to fund the construction project. Provide Kentucky-American’s projections for the conversion of short-term borrowings into long-term debt and common equity, to include the date of the conversion, the amount of long-term debt and common equity that will be issued, Kentucky-American’s capital structure as of the date of this information request, and the capital structure as of the date of the short-term debt conversion.

**Response:**

- a. The Commission proceeding to which KAW referred is Case No. 2011-0115. The Commission’s May 26, 2011 Order in that case authorized the additional long-term financing of \$26.9 million to replace short-term borrowings, as needed, through December 31, 2012. Currently, KAW has issued \$ 20 million in long-term financing and KAW would thus need to seek Commission approval for any long-term debt financing above \$6.9 million. KAW did not identify specific projects in its authorization request but instead sought approval to utilize long-term financing as part of its overall capital construction plan as may be modified from time to time.
- b. As of May 31, 2012, KAW had \$15,176,000 in outstanding short-term debt. The debt to equity mix of KAW was 57 to 43 percent on May 31, 2012. It is anticipated that KAW will require \$8,000,000 in permanent long-term debt financing prior to the end of 2012. This will require additional authorization from the PSC because this amount exceeds the current authorized balance. KAW expects an additional long-term debt issuance of \$6,000,000 in 2013, for a sum total of \$14,000,000. The proceeds from these financings will be used to refinance short-term debt to (i) fund construction expenditures and (ii) meet other internal cash requirements.

In order to maintain a reasonable relationship of long-term debt to common equity, KAW has received or anticipates an infusion of additional equity (through paid-in-capital rather than through the issuance of additional shares) of \$8,000,000 prior to the end of the year, by its parent company, American Water Works Company, Inc.

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**Witness: Keith Cartier / Linda Bridwell**

44.

- a. Provide a list of all employees that operate the Owenton Water Treatment Plant. For each employee listed, provide:
  - (1) Name.
  - (2) Title.
  - (3) Length of employment.
  - (4) Job duties.
  - (5) 2011 and 2012 pay rates.
  - (6) Test-period regular time worked and overtime worked.
  - (7) Percentage of payroll capitalized in 2011. Include any calculations used to develop the percentage.
  - (8) Type of employee benefits (i.e., health insurance, dental insurance, vision insurance, pension, etc.) and amounts paid for each by Kentucky-American.
- b. Identify any employee positions listed in Kentucky-American's response to Item 44(a) that will be eliminated if the Owenton Water Treatment Plant is decommissioned.
- c. Identify any employee positions listed in response to Item 44(a) that will be transferred to KRS II.
- d. Describe the effect of the employee transfers listed in the response to Item 44(d) labor costs at KRS II. State separately for each year from January 1, 2014 to December 31, 2020 the effect on payroll expenses, payroll capitalized, retirement, payroll taxes, and insurance benefits. State all assumptions, show all calculations, and provide all work papers used to determine the effect on labor costs at KRS II. If this information exists in a Microsoft Excel format, provide in such format.

**Response:**

- a. The Owenton Water Treatment Plant is staffed with four full-time production technician positions. See the two attachments for the information requested in (1) through (8). The attachment containing the information requested in subpart (1) has been provided under seal and is the subject of a petition for confidential protection. A third attachment provides detailed job descriptions.
- b. All four production technician positions would be eliminated should the plant be decommissioned.
- c. See b.
- d. See b.



PSC #44 Attachment a.1 - a.7

1	2	3	4	5	5
Employee Name	Title	Length of Employment	Job Duties	2011 Pay Rate	2012 Pay Rate
[REDACTED]	Technician Production	9/15/2005	See Attached Job Desc	\$21.02	\$21.43
	Technician Production	9/15/2005	See Attached Job Desc	\$21.10	\$21.63
	Technician Production	9/15/2005	See Attached Job Desc	\$21.06	\$21.484 thru 5/27/12; \$23.07 5/28/12- 7/16/12
	Technician Production	7/16/2012	See Attached Job Desc		
	Technician Production	5/25/2010	See Attached Job Desc	\$20.90	\$21.32

\* Awarded KRS 2 position May 27, 2012, moved to KRS 2 July 16, 2012

6	6	6	6	7	
Employee Name	2011 Regular Hours Worked	2012 Regular Hours Worked	2011 Overtime Hours Worked	2012 Overtime Hours Worked	Capitalization Rate
[REDACTED]	1811	991	232	81	0
	1841	998	287	115	0
	1796	954	242.5	87.5	0
	0	40	0	0	0
	1920	1070	347	123	0

\* Hired July 16, 2012



## JOB DESCRIPTION

JOB DESCRIPTION			
<b>Job Title: Technician Production (N)</b>			<b>Job Code: <u>406782</u></b>
	<b>Grade: <u>L11</u></b>	<b>FLSA: <u>Non-Exempt</u></b>	<b>EEO: <u>6. Craft Workers (Skilled)</u></b>
<b>Salary Plan:</b>	<b>Level: Not Applicable</b>		
<b>Reports To:</b>	<b>Supvr Production, Supvr Operations &amp; TBD</b>		
<b>Status:</b> Active	<b>Approved:</b> <input checked="" type="checkbox"/> <u>3/24/2010</u>		<b>Revised:</b> <input type="checkbox"/>
<p><b>Primary Role:</b> Responsible for maintaining the operation of the water and/or wastewater facilities including the pumping and booster stations and tank sites and work relating to other remote facilities. Lastly, inform other work area and personnel of situation which may impact company operations and the distribution of the water or wastewater system.</p>			
<b>Key Accountabilities:</b>			<b>Percentage of Time:</b>
Maintain constant surveillance of pumping and purification equipment. Provide laboratory support for chemical and/or microbiological testing for wastewater and/or potable water and additional support for customers and employees.			25
Operate pumping and treatment equipment. Handle chemicals. Set chemical feed equipment at the proper dosage. Perform quality sampling and analysis, adjusting plant flow rated to meet system demands.			25
Operate remote facilities, backwash filters and record hourly readings. Maintain plant cleanliness. Perform minor plant maintenance. Maintain required records.			20
Complete and maintain all necessary local, state and federal records that are related to the water or wastewater system. Assure proper reporting in accordance with regulatory requirements.			20



Provide support within the department for routine tasks including glassware, reagent preparation, Cl2 checks, water system checks, balance and temperature checks, and sample disposal.	10
	0
<b>Education:</b>	High school diploma or recognized Education Equivalency Certificate. Associate or Bachelor degree is a plus.
<b>Skills:</b>	Experience and understanding of repairing and maintaining a water and/or wastewater system. Strong communicating skills required to effectively satisfy both external and internal customers. Organizational and team leadership skills.
<b>Knowledge:</b>	Maintain water and/or wastewater system to include any necessary operation, monitoring, testing, analysis and reporting requirements.
<b>Scope: (Minimum)</b>	<p>Total Supervised: Exempt    <u>0</u>    Non-Exempt:    <u>0</u></p> <p>Direct Budget:                    <u>\$0</u>    Indirect Budget:    <u>\$0</u></p> <p>Direct Revenue:                   <u>\$0</u>    Indirect Revenue:    <u>\$0</u></p>
<b>Experience:</b>	Five to seven years experience. Must be familiar with company procedures regarding water and/or wastewater system processes.
<b>Certifications &amp; Licenses:</b>	Specific license requirements are dependent on reporting location.
<b>Work Environment:</b>	Must be able to work in all types of weather conditions including but not limited to hot and cold temperatures, and other inclimate weather conditions.
<b>Travel Requirements:</b>	Within the distribution system. Limited travel related to training.
<b>Key Interfaces:</b>	Customers, Supervisors, field operations and production/water quality



	employees
<b>Other:</b>	None
<b>Competencies (From The Water Division Competency Dictionary):</b>	

## Attachment PSC DR #44 a.8

Benefit	When You Are Eligible	What You Receive	Monthly Employer Cost								
<p>Medical Plan</p> <p>Administered by Horizon BCBSNJ</p>	<p>1<sup>st</sup> of following month after one full month of service completed (i.e. Start date: 11/16/12 Benefits Eligibility: 3/1/12)</p>	<p><u>PPO Plan</u></p> <p>In -Network: Plan pays 80% of covered expenses. Preventive Care (e.g., annual physicals): Plan typically pays 100% of covered expenses. No annual deductible Out of pocket: \$2,500/\$5,000 (including Rx)</p> <p>Out-of-Network: Plan pays 50% of covered expenses. Preventive Care: Not Covered Deductible: \$200/\$600 Out of pocket: \$5,000 per person</p> <p>Lifetime Max: Unlimited</p> <p>Plan encourages use of cost effective network providers; therefore, plan pays less for out of network services.</p>	<table> <tr> <td>Single</td> <td>\$ 511</td> </tr> <tr> <td>Employee+Spouse or Same-Sex Dom Partner</td> <td>\$1124</td> </tr> <tr> <td>Employee + Child(ren)</td> <td>\$1175</td> </tr> <tr> <td>Family</td> <td>\$1431</td> </tr> </table>	Single	\$ 511	Employee+Spouse or Same-Sex Dom Partner	\$1124	Employee + Child(ren)	\$1175	Family	\$1431
Single	\$ 511										
Employee+Spouse or Same-Sex Dom Partner	\$1124										
Employee + Child(ren)	\$1175										
Family	\$1431										
<p>Prescription Drug Plan</p> <p>Coverage is included in the Medical Plan.</p> <p>Administered by CVS Caremark</p>	<p>1<sup>st</sup> of following month after one full month of service completed</p>	<p>Two ways to buy:</p> <p>Retail (for acute medication): 0% - Generic Drugs 20%- Preferred Brand Name Drugs 20%- Non-Preferred Brand Name Drugs</p> <p>Mail Order (for maintenance or chronic conditions): 0% - Generic Drugs 20%- Preferred Brand Name Drugs 20% -Non-Preferred Brand Name Drugs</p>	<p>Included in the Medical Plan</p>								
<p>Dental Plan</p> <p>Administered by Aetna</p>	<p>1<sup>st</sup> of following month after one full month of service completed</p>	<p>Dental PPO Plan</p> <p>Annual Deductible: Ind. - \$ 50 Family- \$100</p> <p>Preventive: 100% - no deductible Basic: 80% - after deductible Major: 50% - after deductible</p> <p>Calendar Yr Max: \$1,500</p> <p>Orthodontia: 50% - after deductible Covers only eligible dependent children</p> <p>Lifetime Max: \$1,500</p>	<table> <tr> <td>Single</td> <td>\$31</td> </tr> <tr> <td>Employee+Spouse or Same-Sex Dom Partner</td> <td>\$70</td> </tr> <tr> <td>Employee+ Child(ren)</td> <td>\$73</td> </tr> <tr> <td>Family</td> <td>\$89</td> </tr> </table>	Single	\$31	Employee+Spouse or Same-Sex Dom Partner	\$70	Employee+ Child(ren)	\$73	Family	\$89
Single	\$31										
Employee+Spouse or Same-Sex Dom Partner	\$70										
Employee+ Child(ren)	\$73										
Family	\$89										
<p>Vision Plan</p> <p>This plan is bundled with the dental plan.</p> <p>Administered by EyeMed</p>	<p>1<sup>st</sup> of following month after one full month of service completed</p>	<p>Vision Plan covers:</p> <p>Exam: 100% covered after \$15 copay Frames: In-Network: 100% after \$50 copay</p> <p>Standard Plastic Lenses: In-Network: 100% covered after \$35 copay single vision All others: \$50 copay Out-of-Network: Covered up to \$25 (single vision) Covered up to \$70 (lenticular)</p> <p>Contact Lenses: In-Network: Covered up to \$100 (If medically necessary to wear contacts instead of glasses, then 100% of R&amp;C)</p> <p>Frequency: Once every 24 months</p> <p>Out-of-network benefits available-<u>II</u>an pays less</p>	<p>Included in the Dental Plan</p>								

Benefit	When You Are Eligible	What You Receive	KAW ROPSCDR#4 072302 KAW ROPSCDR#4 072302 Page 7 of 11
<p><b>Wellness and Discount Programs</b></p> <p>Administered by Alere</p>	<p>1<sup>st</sup> of following month after one full month of service completed</p>	<p><u>Healthy Solutions Wellness Program</u> The Healthy Solutions Wellness Program offers 24/7 on-line access to wellness information and health challenges. You can earn wellness credits that translate into cash incentives. Nutrition program and fitness center discounts are also available. For more information visit <a href="http://www.AWHealthySolutions.com">www.AWHealthySolutions.com</a>.</p> <p>Horizon Discount Programs</p> <ul style="list-style-type: none"> <li>• Discounts on chiropractic, acupuncture, and massage therapy are available through Horizon's Alternative Therapies Program.</li> <li>• Discounts are available on eye exams, contact lenses, eyeglasses and laser vision correction at participating SmartEyes provider locations that include LensCrafters, Sears Optical, JCPenney Optical, Target Optical and Pearle Vision; as well as through Davis Vision participating providers.</li> <li>• Discounts are available for a variety of health and wellness products, vitamins, gym memberships, nutrition, and much more.</li> </ul> <p>To use the Horizon Discount Programs, present your Horizon BCBS ID card at select businesses or mention that you are a Horizon BCBSNJ member when calling each business. For more information and a complete list of current discount programs and products visit <a href="http://www.horizonblue.com/nationalaccounts">www.horizonblue.com/nationalaccounts</a>.</p>	<p>The Healthy Solutions Wellness Program is available to you, at no cost, even if you opt out of medical.</p> <p>Horizon's Discount Programs are included in the medical plans.</p>
<p><b>Flexible Spending Accounts (Pre-Tax Savings Accounts)</b></p> <p>Administered by Horizon BCBSNJ</p>	<p>1<sup>st</sup> of following month after one full month of service completed</p>	<p><b>Health Care Flexible Spending Account:</b> Set aside to pay for health services not covered by health plan such as:</p> <ul style="list-style-type: none"> <li>- Deductibles</li> <li>- Coinsurance</li> <li>- Hearing Aids</li> <li>- Lasik Eye Surgery</li> <li>-Glasses</li> <li>- Orthodontia</li> </ul> <p>Annual amount that may be contributed:</p> <ul style="list-style-type: none"> <li>- Minimum: \$120; Maximum: \$3,000</li> </ul> <p style="text-align: center;"><b>Use it or lose it</b></p> <p><b>Dependent Care Flexible Spending Account:</b> Set aside to pay for dependent care expenses for working parent such as:</p> <ul style="list-style-type: none"> <li>- Wages paid to babysitter or companion (expenses not covered if care is provided by someone claimed as a dependent)</li> <li>- Nursery school/day care center costs</li> <li>- Elder care costs</li> <li>- Wages paid to a housekeeper for providing care for an eligible dependent (<b>dependent child under 13</b>) or any dependent who is physically or mentally incapable of self care</li> <li>- Annual amount that may be contributed is \$5,000 (\$2,500 if married and file separately)</li> </ul> <p style="text-align: center;"><b>Use it or lose it</b></p>	<p>Voluntary Contribution</p>



Benefit	When You Are Eligible	What You Receive	Monthly Employer Cost
<b>Group Term Life Insurance</b>  Administered by MetLife	1 <sup>st</sup> of following month after one full month of service completed	<b>Basic life insurance</b> equal to 1 1/2 times your base salary rounded up to next highest \$1,000 (Maximum Benefit is \$200,000)  <b>Accident Death &amp; Dismemberment:</b> equal to 1 1/2 times your base salary rounded up to next highest \$1,000 (Maximum Benefit is \$200,000)	\$0.168 per \$1,000
<b>Travel Accident Insurance</b>	Immediately	<b>Travel Accident Insurance while on company business:</b> - 10x base pay - Maximum Benefit: \$400,000	
<b>Voluntary Term Life Insurance</b>  Administered by MetLife	1 <sup>st</sup> of following month after one full month of service completed	Voluntary Life Insurance (VL) is in addition to the company-paid Basic Life Insurance. You may purchase up to the lesser of either \$300,000 or 3 times your salary in coverage without having to provide evidence of good health, provided you enroll on a timely basis. Your choices are: - VL of 1 x base pay - VL of 2 x base pay - VL of 3 x base pay	Monthly Contribution based on age.
<b>Voluntary Dependent Term Life (VDL) Insurance</b>  Administered by MetLife	1 <sup>st</sup> of following month after one full month of service completed	VDL covers eligible dependents. You will be the beneficiary of the Dependent Term Life coverage you elect. The plan offers \$20,000 coverage for spouse or same-sex/domestic partner; and \$10,000 coverage for each dependent child.	Voluntary Contribution  \$5.00/mo. for spouse or same sex/domestic partner  \$1.20/mo. for all children
<b>Employee Assistance Plan (EAP)</b>  Administered by Carebridge	1 <sup>st</sup> of following month after one full month of service completed	Provides employee and each eligible dependent with up to six sessions per issue, per calendar year, for evaluation, short-term counseling and/or referral for behavioral health care issues at no cost, as well as legal, elder care and child care referral assistance.	
<b>Short Term Disability</b>  Administered by Aetna	1 <sup>st</sup> of following month after one full month of service completed	You are eligible for 2 weeks of sick leave at full pay each year. If you are still disabled after 2 weeks, you will receive 75% of your base pay for an additional 50 weeks through the STD benefit.	\$ 2.25 per employee
<b>Long Term Disability</b>  Administered by Aetna	Qualifying Period: 52 weeks	Provides 60% of base monthly income (not to exceed \$15,000) replacement if employee becomes disabled due to illness or accident  Offsets for other income benefits such as social security disability, income from any employer or any employment & disability, retirement, pension or annuity benefits from any group insurance or pension plan (including American Water), membership or association with any group association, union or other organization.	<b>\$0.40 per \$100 (benefit to EE taxed @ \$0.21/\$100)</b>



Benefit	When You Are Eligible	What You Receive	Monthly Cost To Employee
<b>401(k)</b>  Record Keeper/ Trustee -Merrill Lynch	Employees are eligible to participate as soon as possible after date of hire.	<ul style="list-style-type: none"> <li>- A retirement and savings plan that allows you to save on a pre-tax basis.</li> <li>- Company matches 100% for every dollar you contribute during each pay period up to the first 3% of your total pay, and a 50% matching contribution on the next 2% of your total pay you contribute during each pay period.</li> <li>- Company matching contributions vest immediately.</li> <li>- Company matching contributions will be invested in the same funds as you direct your employee contributions.</li> <li>- You may contribute up to 50% of your eligible compensation not exceeding IRS limits.</li> <li>- If you are age 50 or older, you will be able to make an additional "catch-up" contribution of \$5,500 to the plan in 2012. This means that if you are age 50 or older in 2012, you may be able to contribute up to \$22,500 (the \$17,000 IRS limit plus the \$5,500 catch-up contribution) to the Plan on a pre-tax basis in 2012. Matching contributions are not made on catch-up contributions. You may elect a pre-tax "catch-up" deferral rate of 1-50% of your eligible compensation up to the \$5,500 limit.</li> <li>- For your contribution to be classified as "catch-up" contributions, you must have either a contribution equal to the plan maximum limit of 50% or actual pre-tax contributions of \$17,000 for 2012. At the end of the year, if your pre-tax contributions do not meet these requirements, the "catch-up" contributions (to the extent necessary) will automatically be re-characterized as regular pre-tax contributions in the Plan. If contributions are reclassified, they are not subject to receive a company match.</li> </ul>	Voluntary Contribution up to 50% of your eligible compensation not to exceed IRS limit of \$17,000 in 2012  Catch Up Contributions Voluntary contribution up to \$5,500 in 2012

Benefits	When You Are Eligible	What You Receive	Monthly Cost To Employee
<b>Defined Contribution Account</b>  (This is part of the 401(k) Plan)  Record Keeper/ Trustee – Merrill Lynch	Immediately	American Water will also contribute 5.25% of your base pay into your account following each pay period. As part of the 401(k) plan, you manage the investment options of your account. You will be able to select the investment option that best meets your investment goals. - You are fully vested in your account balance after one year of service. -Different provisions apply to this segment of your 401(k) Plan (i.e. no loans/hardships).	Contribution not to exceed IRS limit of \$13,125 in 2012
<b>Employee Stock Purchase Plan (ESPP)</b>  Recordkeeper – E*TRADE	Employees are eligible to participate as soon as possible after date of hire.	-Ability to purchase shares of American Water Common Stock at a 10% discount off the New York Stock Exchange price. -You can contribute up to 10% of your base wages during each pay period on an after-tax basis via payroll deduction. - Enrollment is quarterly. - Vesting is immediate. - Shares are purchased quarterly. -The discount on the purchase price of the shares is taxable at the time of purchase through payroll. - Six-month holding period required before shares can be sold or transferred from your E*TRADE ESPP account. - Quarterly dividends are paid in cash to your E*TRADE brokerage account.	- Voluntary contributions up to 10% of your eligible compensation not to exceed \$25,000 per year.  For additional information, refer to your ESPP Brochure, ESPP Prospectus and New Hire Guide.
<b>Vacation</b>	Based on policy.		None
<b>Holidays</b>	Based on policy.		None
<b>Educational Assistance</b>	Employees may take advantage of this benefit for eligible courses in which they enroll after their date of hire.	- Financial Assistance of 100% for tuition, registration and required fees. - Books, equipment, travel, parking, late registration and insurance are the responsibility of the employee (Graduate level course work may be taxable income).  <b>Limits include:</b> - \$5,250.00 per year - Proof of grade of C or better (Undergraduate), B or better (Graduate) must be submitted at the completion of each course. For more information contact your HR representative.	None

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**Witness: Keith Cartier / Linda Bridwell**

45. Refer to "Engineering Feasibility Study Report for Supplying Kentucky American Water's Northern District Distribution System," Appendix D. For each year listed, provide a breakdown of projected labor costs into the following categories: payroll, retirement, payroll taxes, and insurance benefits.

**Response:**

Year	Payroll	Retirement	Payroll Taxes	Insurance Benefits
2014	\$275,820	\$10,306	\$21,973	\$58,652
2015	\$284,095	\$10,616	\$22,632	\$60,411
2016	\$307,790	\$10,934	\$23,311	\$62,224
2017	\$307,790	\$11,262	\$24,010	\$64,091
2018	\$307,790	\$11,600	\$24,731	\$66,013
2019	\$307,790	\$11,948	\$25,472	\$67,994
2020	\$307,790	\$12,306	\$26,237	\$70,033

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**Witness: Lance Williams / Keith Cartier**

46. Refer to "Engineering Feasibility Study Report for Supplying Kentucky American Water's Northern District Distribution System," Appendix D. Describe how Kentucky-American determined the inflation factor used for each expense:
- a. Chemical: 7 percent;
  - b. Fuel and Power: 10 percent;
  - c. Labor: 3 percent; and
  - d. Sludge Disposal: 5 percent.

State all assumptions, show all calculations and provide all work papers that Kentucky-American used to determine each inflation factor.

**Response:**

- a) The average cost increase in the unit costs for chemicals at the Owenton WTP over the past year is 7%. See attached.
- b) Fuel and Power cost inflation is estimated at 10% due to volatility in this market during the past few years.
- c) The cost inflation for Labor is estimated at 3% based on the average United States inflation.
- d) Sludge Disposal costs are estimated to increase by 5%.

Please also refer to the Response to PSC DR 38 for 2011 actual expenses for the above-referenced categories. The 2011 actual expenses were higher than the Appendix D 2014 level starting points upon which inflation factors are applied (\$224,039 vs. \$222,307 for Chemicals; \$157,759 vs. \$141,320 2014 for Fuel & Power; and \$36,441 vs. \$32,083 for Sludge).

<b>Owenton WTP Chemicals</b>	<b>2011 Unit Cost</b>	<b>2012 Unit Cost</b>	<b>% Increase</b>
Carbon	\$0.86	\$0.86	0%
Chlorine	\$0.43	\$0.41	-5%
Copper Sulfate	\$1.75	\$1.80	3%
Ferric	\$0.22	\$0.22	0%
HFS Acid	\$0.42	\$0.42	0%
Polymer An	\$0.98	\$1.25	28%
Sod. Perm.	\$1.25	\$1.23	-2%
Sod. Hyd. 30%	\$0.19	\$0.20	5%
Sod. Hyd. 50%	\$0.21	\$0.22	5%
Sod. Thio gal	\$0.43	\$0.46	7%
Sod. Thio lb	\$0.31	\$0.46	48%
Sulf. Acid	\$0.28	\$0.28	0%
<b>Avg. Increase</b>			<b>7%</b>

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**Witness: Lance Williams/ Linda Bridwell**

47.

- a. Provide a schedule detailing all expenditures that have occurred to the date of this Request that relate to the application filed in this proceeding. State the nature and amount of each charge and provide a copy of the vendor invoice. The invoices should contain detailed descriptions of the services, the amount of time billed for each service, and the hourly billing rate. Identify the account number and title to which each amount was charged.
- b. Provide the anticipated total cost of this case upon completion. The projected amount should be detailed by type of service and vendor with supporting documentation for each.
- c. Provide a monthly update of the schedule requested in Item 47(b) showing all of the costs incurred as of that date and include the supporting detailed vendor invoices.

**Response:**

- a) See attached.
- b) The anticipated total cost of this case will depend on whether this case is resolved by agreement, fully litigated, and/or appealed. It is estimated that if this case goes to hearing and appeal the total legal cost may exceed \$50,000 - \$75,000. It is also anticipated there will be fees from support services of approximately \$75,000.00. It must be noted that similar legal and support services costs would be incurred in making the necessary improvements to the Owenton Water Treatment Plant.

Description	NARUC Account Number
Legal	633.8
Support Services	635.8

Engineering design fees, easement acquisition and permit fees are included in the project cost which is located in Appendix C of the Northern Connection Study.

- c) KAW will provide this information on a monthly basis, as requested.

Month	Work Order	Bus Unit	GL ACCT	Description	Amount	Vendor inv	Vendor	
07/2012	541537	123200	105275	Contracted Services	4,918.60	720390	Stoll Keenon Ogden PLLC	copy attached
06/2012	541537	123200	105350	AFUDC debt charge	1,180.20			
06/2012	541537	123200	105375	AFUDC equity charge	1,538.47			
06/2012	541537	123200	105275	Contracted Services	3,353.20	718534	Stoll Keenon Ogden PLLC	copy attached
06/2012	541537	123200	105200	Labor	481.33			
06/2012	541537	123200	105200	Labor	320.89			
06/2012	541537	123200	105250	Labor Overhead	201.29			
06/2012	541537	123200	105250	Labor Overhead	142.48			
06/2012	541537	123200	105260	Overhead	293.35			
05/2012	541537	123200	105350	AFUDC debt charge	1,138.87			
05/2012	541537	123200	105375	AFUDC equity charge	1,484.60			
05/2012	541537	123200	105275	Contracted Services	8,866.06	0091690	Strand Associates Inc	copy attached
05/2012	541537	123200	105275	Contracted Services	4,314.85	716502	Stoll Keenon Ogden PLLC	copy attached
05/2012	541537	123200	105275	Contracted Services	2,830.21	0091327	Strand Associates Inc	copy attached
05/2012	541537	123200	105200	Labor	641.78			
05/2012	541537	123200	105200	Labor	481.33			
05/2012	541537	123200	105200	Labor	481.33			
05/2012	541537	123200	105250	Labor Overhead	285.17			
05/2012	541537	123200	105250	Labor Overhead	213.88			
05/2012	541537	123200	105250	Labor Overhead	175.15			
05/2012	541537	123200	105260	Overhead	1,192.49			
04/2012	541537	123200	105350	AFUDC debt charge	1,007.86			
04/2012	541537	123200	105375	AFUDC equity charge	1,313.82			
04/2012	541537	123200	105275	Contracted Services	43,715.00	0033264	GRW Engineers Inc	copy attached
04/2012	541537	123200	105275	Contracted Services	8,982.00	0090654	Strand Associates Inc	copy attached
04/2012	541537	123200	105275	Contracted Services	4,372.75	713501	Stoll Keenon Ogden PLLC	copy attached
04/2012	541537	123200	105275	Contracted Services	4,169.25	0090653	Strand Associates Inc	copy attached
04/2012	541537	123200	105200	Labor	481.33			
04/2012	541537	123200	105200	Labor	481.33			
04/2012	541537	123200	105200	Labor	160.44			
04/2012	541537	123200	105200	Labor	(16.04)			
04/2012	541537	123200	105200	Labor	(48.13)			
04/2012	541537	123200	105200	Labor	(48.13)			
04/2012	541537	123200	105250	Labor Overhead	213.87			
04/2012	541537	123200	105250	Labor Overhead	213.87			
04/2012	541537	123200	105250	Labor Overhead	71.21			
04/2012	541537	123200	105250	Labor Overhead	(7.12)			
04/2012	541537	123200	105250	Labor Overhead	(21.39)			
04/2012	541537	123200	105250	Labor Overhead	(21.39)			
04/2012	541537	123200	105125	Licenses, Permits & Misc Fees	2,500.00	00247744	Kentucky State Treasurer	WQ Permit Fee
04/2012	541537	123200	105260	Overhead	4,250.96			
03/2012	541537	123200	105350	AFUDC debt charge	873.42			
03/2012	541537	123200	105375	AFUDC equity charge	1,138.56			
03/2012	541537	123200	105275	Contracted Services	19,491.00	0090215	Strand Associates Inc - All Us	copy attached
03/2012	541537	123200	105200	Labor	778.85			
03/2012	541537	123200	105200	Labor	623.07			
03/2012	541537	123200	105200	Labor	(62.31)			

03/2012	541537	123200	105200 Labor	(77.89)			
03/2012	541537	123200	105250 Labor Overhead	361.88			
03/2012	541537	123200	105250 Labor Overhead	276.60			
03/2012	541537	123200	105250 Labor Overhead	(27.66)			
03/2012	541537	123200	105250 Labor Overhead	(36.19)			
03/2012	541537	123200	105125 Licenses, Permits & Misc Fe	148.98	JASON M HURT	OWENTON NEWS	Credit Card purchase
03/2012	541537	123200	105260 Overhead	1,084.55			
02/2012	541537	123200	105350 AFUDC debt charge	752.66			
02/2012	541537	123200	105375 AFUDC equity charge	981.15			
02/2012	541537	123200	105275 Contracted Services	55,166.35	0089825		Strand Associates Inc - use 50 copy attached
02/2012	541537	123200	105200 Labor	1,246.15			
02/2012	541537	123200	105200 Labor	467.31			
02/2012	541537	123200	105200 Labor	(46.73)			
02/2012	541537	123200	105200 Labor	(124.62)			
02/2012	541537	123200	105250 Labor Overhead	483.60			
02/2012	541537	123200	105250 Labor Overhead	207.40			
02/2012	541537	123200	105250 Labor Overhead	(20.74)			
02/2012	541537	123200	105250 Labor Overhead	(48.36)			
02/2012	541537	123200	105260 Overhead	2,895.18			
01/2012	541537	123200	105350 AFUDC debt charge	660.51			
01/2012	541537	123200	105375 AFUDC equity charge	861.02			
01/2012	541537	123200	105200 Labor	1,246.16			
01/2012	541537	123200	105200 Labor	389.42			
01/2012	541537	123200	105200 Labor	(38.94)			
01/2012	541537	123200	105200 Labor	(124.62)			
01/2012	541537	123200	105250 Labor Overhead	578.02			
01/2012	541537	123200	105250 Labor Overhead	125.96			
01/2012	541537	123200	105250 Labor Overhead	(12.59)			
01/2012	541537	123200	105250 Labor Overhead	(57.80)			
01/2012	541537	123200	105125 Licenses, Permits & Misc Fe	325.00	00242244	Kentucky State Treasurer	DOW Review fee
01/2012	541537	123200	105260 Overhead	122.75			
12/2011	541537	123200	105350 AFUDC debt charge	357.51			
12/2011	541537	123200	105375 AFUDC equity charge	466.04			
12/2011	541537	123200	105275 Contracted Services	78,390.50	0088943	Strand Associates Inc	copy attached
12/2011	541537	123200	105275 Contracted Services	42,242.93	0088763	Strand Associates Inc	copy attached
12/2011	541537	123200	105200 Labor	6,266.89			
12/2011	541537	123200	105200 Labor	934.61			
12/2011	541537	123200	105200 Labor	623.08			
12/2011	541537	123200	105200 Labor	(62.31)			
12/2011	541537	123200	105200 Labor	(93.46)			
12/2011	541537	123200	105250 Labor Overhead	2,471.36			
12/2011	541537	123200	105250 Labor Overhead	379.40			
12/2011	541537	123200	105250 Labor Overhead	305.28			
12/2011	541537	123200	105250 Labor Overhead	(30.53)			
12/2011	541537	123200	105250 Labor Overhead	(37.94)			
12/2011	541537	123200	105260 Overhead	14,117.19			
12/2011	541537	123200	105260 Overhead	2,060.68			
12/2011	541537	123200	105260 Overhead	(2,198.04)			



11/2011	541537	123200	105350 AFUDC debt charge	27.03			
11/2011	541537	123200	105375 AFUDC equity charge	35.24			
11/2011	541537	123200	105275 Contracted Services	14,534.20	0088058	Strand Associates Inc	copy attached
11/2011	541537	123200	105200 Labor	1,401.91			
11/2011	541537	123200	105200 Labor	778.84			
11/2011	541537	123200	105200 Labor	(77.88)			
11/2011	541537	123200	105200 Labor	(140.19)			
11/2011	541537	123200	105250 Labor Overhead	580.94			
11/2011	541537	123200	105250 Labor Overhead	316.44			
11/2011	541537	123200	105250 Labor Overhead	(31.64)			
11/2011	541537	123200	105250 Labor Overhead	(58.09)			
11/2011	541537	123200	105260 Overhead	2,004.36			
04/2012	541537	123200	105200 Labor	48.13			
04/2012	541537	123200	105200 Labor	48.13			
04/2012	541537	123200	105200 Labor	16.04			
04/2012	541537	123200	105250 Labor Overhead	21.39			
04/2012	541537	123200	105250 Labor Overhead	21.39			
04/2012	541537	123200	105250 Labor Overhead	7.12			
04/2012	541537	123200	105260 Overhead	10.57			
03/2012	541537	123200	105200 Labor	77.89			
03/2012	541537	123200	105200 Labor	62.31			
03/2012	541537	123200	105250 Labor Overhead	36.19			
03/2012	541537	123200	105250 Labor Overhead	27.66			
03/2012	541537	123200	105260 Overhead	10.30			
02/2012	541537	123200	105200 Labor	124.62			
02/2012	541537	123200	105200 Labor	46.73			
02/2012	541537	123200	105250 Labor Overhead	48.36			
02/2012	541537	123200	105250 Labor Overhead	20.74			
02/2012	541537	123200	105260 Overhead	12.14			
01/2012	541537	123200	105200 Labor	124.62			
01/2012	541537	123200	105200 Labor	38.94			
01/2012	541537	123200	105250 Labor Overhead	57.80			
01/2012	541537	123200	105250 Labor Overhead	12.59			
01/2012	541537	123200	105260 Overhead	11.81			
12/2011	541537	123200	105200 Labor	93.46			
12/2011	541537	123200	105200 Labor	62.31			
12/2011	541537	123200	105250 Labor Overhead	37.94			
12/2011	541537	123200	105250 Labor Overhead	30.53			
12/2011	541537	123200	105260 Overhead	25.81			
11/2011	541537	123200	105200 Labor	140.19			
11/2011	541537	123200	105200 Labor	77.88			
11/2011	541537	123200	105250 Labor Overhead	58.09			
11/2011	541537	123200	105250 Labor Overhead	31.64			
11/2011	541537	123200	105260 Overhead	22.82			
05/2012	541539	123200	105275 Contracted Services	10,510.91	0091691	Strand Associates Inc	copy attached
05/2012	541539	123200	105275 Contracted Services	7,341.43	0091047	Strand Associates Inc	copy attached
05/2012	541539	123200	105260 Overhead	1,163.97			
04/2012	541539	123200	105275 Contracted Services	7,234.45	0090655	Strand Associates Inc	copy attached

04/2012	541539	123200	105125 Licenses, Permits & Misc Fe	4,125.00	00246871	Blue Moon Investors LLC	Easement Payment - Option to Purchase
04/2012	541539	123200	105125 Licenses, Permits & Misc Fe	4,000.00	00246870	Brock, Martha B	Easement Payment - Option to Purchase
04/2012	541539	123200	105260 Overhead	1,001.44			
03/2012	541539	123200	105275 Contracted Services	16,598.75	0090216	Strand Associates Inc - All Us	copy attached
03/2012	541539	123200	105260 Overhead	838.24			
02/2012	541539	123200	105275 Contracted Services	2,561.00	0089528	Strand Associates Inc - use 50	copy attached
02/2012	541539	123200	105260 Overhead	129.33			
12/2011	541539	123200	105275 Contracted Services	24,541.82	0088944	Strand Associates Inc	copy attached
12/2011	541539	123200	105275 Contracted Services	15,862.08	0088764	Strand Associates Inc	copy attached
12/2011	541539	123200	105260 Overhead	4,650.49			
12/2011	541539	123200	105260 Overhead	(762.16)			
11/2011	541539	123200	105125 Licenses, Permits & Misc Fe	4,125.00	00239877	Blue Moon Investors LLC	Easement Payment - Option to Purchase
11/2011	541539	123200	105125 Licenses, Permits & Misc Fe	4,000.00	00239878	Brock, Martha B	Easement Payment - Option to Purchase
11/2011	541539	123200	105260 Overhead	935.19			
12/2011	430916	123200	105200 Labor	(6,266.89)			
12/2011	430916	123200	105250 Labor Overhead	(2,471.36)			
12/2011	430916	123200	105260 Overhead	23.72			
12/2011	430916	123200	105260 Overhead	(2,084.40)			
03/2009	430916	123200	105350 AFUDC debt charge	121.30			
03/2009	430916	123200	105375 AFUDC equity charge	157.80			
02/2009	430916	123200	105350 AFUDC debt charge	239.53			
02/2009	430916	123200	105375 AFUDC equity charge	311.60			
02/2009	430916	123200	105275 Contracted Services	974.00	0068165	Strand Associates Inc	copy attached
02/2009	430916	123200	105260 Overhead	40.52			
01/2009	430916	123200	105350 AFUDC debt charge	236.47			
01/2009	430916	123200	105375 AFUDC equity charge	307.62			
12/2008	430916	123200	105350 AFUDC debt charge	234.87			
12/2008	430916	123200	105375 AFUDC equity charge	305.54			
12/2008	430916	123200	105150 Materials & Supplies	53.29	JASON M HURT	OFFICE DEPOT	Credit Card purchase
12/2008	430916	123200	105260 Overhead	1.71			
12/2008	430916	123200	105260 Overhead	(19.18)			
11/2008	430916	123200	105350 AFUDC debt charge	228.27			
11/2008	430916	123200	105375 AFUDC equity charge	296.96			
11/2008	430916	123200	105275 Contracted Services	3,327.00	0067337	Strand Associates Inc	copy attached
11/2008	430916	123200	105260 Overhead	106.80			
10/2008	430916	123200	105350 AFUDC debt charge	219.65			
10/2008	430916	123200	105375 AFUDC equity charge	285.74			
10/2008	430916	123200	105200 Labor	581.48			
10/2008	430916	123200	105200 Labor	452.24			
10/2008	430916	123200	105250 Labor Overhead	219.90			
10/2008	430916	123200	105250 Labor Overhead	153.85			
10/2008	430916	123200	105150 Materials & Supplies	31.22	JASON M HURT	OFFICE DEPOT	Credit Card purchase
10/2008	430916	123200	105260 Overhead	46.18			
09/2008	430916	123200	105350 AFUDC debt charge	187.75			

09/2008	430916	123200	105375 AFUDC equity charge	244.24			
09/2008	430916	123200	105275 Contracted Services	17,774.75	0066544	Strand Associates Inc	copy attached
09/2008	430916	123200	105200 Labor	516.85			
09/2008	430916	123200	105200 Labor	452.24			
09/2008	430916	123200	105250 Labor Overhead	195.37			
09/2008	430916	123200	105250 Labor Overhead	160.50			
09/2008	430916	123200	105260 Overhead	494.69			
08/2008	430916	123200	105350 AFUDC debt charge	102.18			
08/2008	430916	123200	105375 AFUDC equity charge	132.93			
08/2008	430916	123200	105275 Contracted Services	20,502.25	0065824	Strand Associates Inc	copy attached
08/2008	430916	123200	105275 Contracted Services	10,289.50	0065066	Strand Associates Inc	copy attached
08/2008	430916	123200	105275 Contracted Services	5,423.25	0064593	Strand Associates Inc	copy attached
08/2008	430916	123200	105200 Labor	581.49			
08/2008	430916	123200	105200 Labor	581.45			
08/2008	430916	123200	105250 Labor Overhead	219.92			
08/2008	430916	123200	105250 Labor Overhead	206.19			
08/2008	430916	123200	105260 Overhead	979.13			
07/2008	430916	123200	105350 AFUDC debt charge	42.71			
07/2008	430916	123200	105375 AFUDC equity charge	55.55			
07/2008	430916	123200	105200 Labor	646.07			
07/2008	430916	123200	105200 Labor	452.25			
07/2008	430916	123200	105200 Labor	258.42			
07/2008	430916	123200	105250 Labor Overhead	284.61			
07/2008	430916	123200	105250 Labor Overhead	137.25			
07/2008	430916	123200	105250 Labor Overhead	97.72			
07/2008	430916	123200	105260 Overhead	48.60			
06/2008	430916	123200	105350 AFUDC debt charge	38.40			
06/2008	430916	123200	105375 AFUDC equity charge	49.95			
06/2008	430916	123200	105200 Labor	452.24			
06/2008	430916	123200	105200 Labor	452.24			
06/2008	430916	123200	105200 Labor	129.21			
06/2008	430916	123200	105200 Labor	(452.24)			
06/2008	430916	123200	105250 Labor Overhead	199.36			
06/2008	430916	123200	105250 Labor Overhead	199.36			
06/2008	430916	123200	105250 Labor Overhead	56.90			
06/2008	430916	123200	105250 Labor Overhead	(199.36)			
06/2008	430916	123200	105260 Overhead	22.95			
05/2008	430916	123200	105350 AFUDC debt charge	20.58			
05/2008	430916	123200	105375 AFUDC equity charge	26.78			
05/2008	430916	123200	105275 Contracted Services	9,870.78	0063667	Strand Associates Inc	copy attached
05/2008	430916	123200	105200 Labor	452.24			
05/2008	430916	123200	105200 Labor	323.07			
05/2008	430916	123200	105250 Labor Overhead	230.70			
05/2008	430916	123200	105250 Labor Overhead	142.25			
05/2008	430916	123200	105260 Overhead	301.92			
05/2008	430916	123200	105260 Overhead	(23.72)			
04/2008	430916	123200	105350 AFUDC debt charge	2.07			
04/2008	430916	123200	105375 AFUDC equity charge	2.69			

04/2008	430916	123200	105275 Contracted Services	809.00	0063081	Strand Associates Inc	copy attached
04/2008	430916	123200	105200 Labor	387.64			
04/2008	430916	123200	105250 Labor Overhead	166.84			
04/2008	430916	123200	105260 Overhead	61.08			

**STOLL · KEENON · OGDEN**

PLLC

300 West Vine Street

Suite 2100

Lexington, Kentucky 40507-1801

(859) 231-3000

Tax Id # 61-0421389

May 11, 2012

Kentucky-American Water Company  
American Water Company  
SSC - A/P Dept  
Workbasket #A12ASST04  
P.O. Box 5610  
Cherry Hill, NJ 08034

N/A

V # 12000934

NSX \$ 3,353.20 *mm*

INVOICE NO. 718534  
SKO File No.: 10311/142751

Please Remit This Page With Payment To:

**STOLL · KEENON · OGDEN**

PLLC

P.O. Box 11969

Lexington, Kentucky 40579-1969

Re: Northern Division Connection

Workbasket number: A12SEC09

Kentucky-American Water  
Attn: Paula Squires  
2300 Richmond Road  
Lexington, KY 40502  
Our Reference: 010311/142751/LWI/2404

Fees rendered this bill \$ 3,350.00

Disbursements \$ 3.20

**Total Current Charges This Matter**

RECEIVED

MAY 14 2012

**\$ 3,353.20**

SSC-MAILROOM

Balance as of 04/25/12 \$8,687.60

Less credits (payments, adjustments) \$-4,372.75

**Balance due on prior billings \$4,314.85**

**Total Amount Due This Matter \$7,668.05**

**STOLL · KEENON · OGDEN**  
 PLLC  
 300 West Vine Street  
 Suite 2100  
 Lexington, Kentucky 40507-1801  
 (859) 231-3000  
 Tax Id # 61-0421389  
 May 11, 2012

Kentucky-American Water Company  
 American Water Company  
 SSC - A/P Dept.  
 Workbasket #A12ASST04  
 P.O. Box 5610  
 Cherry Hill, NJ 08034

INVOICE NO.: 718534  
 SKO File No.: 10311/142751

Workbasket number: A12SEC09

Kentucky-American Water  
 Attn: Paula Squires  
 2300 Richmond Road  
 Lexington, KY 40502

MATTER NAME: Northern Division Connection

TOTAL FEES FOR PROFESSIONAL SERVICES PER ATTACHED 3,350.00

TOTAL CHARGES FOR EXPENSES AND OTHER SERVICES PER ATTACHED 3.20

INVOICE TOTAL \$ 3,353.20

BALANCE DUE from previous statements:

Bill Date	Invoice	Outstanding Amount
04/25/12	716502	4,314.85

*PD VCH 43094181*

Total Balance Due on Previous Statements: \$ 4,314.85

**RECEIVED**

TOTAL BALANCE DUE \$7,668.05

MAY 14 2012

**SSC-MAILROOM**

BILL DATE: May 11, 2012

Kentucky-American Water Company  
 American Water Company  
 SSC - A/P Dept.  
 Cherry Hill, NJ 08034

<b>LEGAL FEES</b>					
<b>DATE</b>	<b>IND</b>	<b>DESCRIPTION OF SERVICE</b>	<b>HOURS</b>	<b>RATE</b>	<b>AMOUNT</b>
04/23/12	LWI	Work on feasibility study and conference with client re: same	3.50	335.00	\$ 1,172.50
04/25/12	LWI	Prepare for meeting with client; review all materials for filing	1.00	335.00	335.00
04/26/12	LWI	Work on application and related materials	3.00	335.00	1,005.00
04/27/12	LWI	Prepare for and attend meeting with client; follow-up tasks; work on permits issue	2.50	335.00	837.50
<b>SUBTOTAL</b>			<b>10.00</b>		<b>\$3,350.00</b>

**EXPENSES AND OTHER SERVICES**

*\*\*note: all copies are billed at .10/page unless otherwise indicated*

<b>DATE</b>	<b>DESCRIPTION</b>	<b>AMOUNT</b>
04/27/12	Color Replication	3.20
<b>SUBTOTAL</b>		<b>3.20</b>
<b>GRAND TOTAL:</b>		<b>\$3,353.20</b>

**ATTORNEY/PARALEGAL SUMMARY**

<b>TIMEKEEPER</b>	<b>RANK</b>	<b>HOURS</b>	<b>RATE</b>	<b>AMOUNT</b>
L. W Ingram, III	Member	10.00	335.00	\$3,350.00

**RECEIVED**

MAY 14 2012

**SSC-MAILROOM**

**STOLL · KEENON · OGDEN**

PLLC

300 West Vine Street

Suite 2100

Lexington, Kentucky 40507-1801

(859) 231-3000

Tax Id # 61-0421389

April 25, 2012

*NSX  
M  
12000934  
3*

Kentucky-American Water Company  
American Water Company  
SSC - A/P Dept.  
Workbasket #A12ASST04  
P.O. Box 5610  
Cherry Hill, NJ 08034

INVOICE NO: 716502  
SKO File No.: 10311/142751

Please Remit This Page With Payment To:

**STOLL · KEENON · OGDEN**

PLLC

P.O. Box 11969

Lexington, Kentucky 40579-1969

Re: Northern Division Connection

Workbasket number: A12SEC09

Kentucky-American Water  
Attn: Paula Squires  
2300 Richmond Road  
Lexington, KY 40502  
Our Reference: 010311/142751/LWI/2404

Fees rendered this bill \$ 4,288.00

Disbursements \$ 26.85

**Total Current Charges This Matter \$ 4,314.85**

**RECEIVED**

Balance as of 03/26/12 *pd  
CK# 62065506  
4/25/12* APR 30 2012 \$4,372.75

Less credits (payments, adjustments) **SSC-MAILROOM** \$0.00

**Balance due on prior billings \$4,372.75**

**Total Amount Due This Matter \$8,687.60**



**STOLL · KEENON · OGDEN**  
**PLLC**  
**300 West Vine Street**  
**Suite 2100**  
**Lexington, Kentucky 40507-1801**  
**(859) 231-3000**  
**Tax Id # 61-0421389**  
 April 25, 2012

Kentucky-American Water Company  
 American Water Company  
 SSC - A/P Dept.  
 Workbasket #A12ASST04  
 P.O. Box 5610  
 Cherry Hill, NJ 08034

INVOICE NO.: 716502  
 SKO File No.: 10311/142751

Workbasket number: A12SEC09

Kentucky-American Water  
 Attn: Paula Squires  
 2300 Richmond Road  
 Lexington, KY 40502

MATTER NAME: Northern Division Connection

TOTAL FEES FOR PROFESSIONAL SERVICES PER ATTACHED 4,288.00

TOTAL CHARGES FOR EXPENSES AND OTHER SERVICES  
 PER ATTACHED 26.85

INVOICE TOTAL \$ 4,314.85

BALANCE DUE from previous statements:

Bill Date	Invoice	Outstanding Amount
03/26/12	713501 <i>pd</i>	4,372.75

**RECEIVED**

APR 30 2012

Total Balance Due on Previous Statements: \$ 4,372.75

**TOTAL BALANCE DUE** \$8,687.60

**SSC-MAILROOM**

**BILL DATE:** April 25, 2012

Kentucky-American Water Company  
 American Water Company  
 SSC - A/P Dept.  
 Cherry Hill, NJ 08034

**LEGAL FEES**

<b>DATE</b>	<b>IND</b>	<b>DESCRIPTION OF SERVICE</b>	<b>HOURS</b>	<b>RATE</b>	<b>AMOUNT</b>
03/21/12	LWI	Work on application and related materials	1.50	335.00	\$ 502.50
03/23/12	LWI	Work on application and permit issues	1.80	335.00	603.00
03/26/12	LWI	Prepare and file letter of waiver with PSC; work on permit issue and application; prepare for meeting with client	3.10	335.00	1,038.50
03/27/12	LWI	Conference with M. Askin re: permits; prepare for client meeting; attend meeting; work on application; identify tasks to be performed	3.70	335.00	1,239.50
03/30/12	LWI	Finalize and file waiver pleading with PSC; review order for same	2.00	335.00	670.00
04/10/12	LWI	Review correspondence from client and attached reports/permits	0.70	335.00	234.50
<b>SUBTOTAL</b>			<b>12.80</b>		<b>\$4,288.00</b>

**EXPENSES AND OTHER SERVICES**

*\*\*note: all copies are billed at .10/page unless otherwise indicated*

<b>DATE</b>	<b>DESCRIPTION</b>	<b>AMOUNT</b>
03/26/12	Duplicating Charges	8.90
03/30/12	Duplicating Charges	0.70
03/30/12	Color Replication	0.20
03/30/12	Color Replication	0.40
04/06/12	Long distance transportation, mileage frankfort 3/30 <i>VENDOR: ROSS, RANDALL H; INVOICE#: 40612; DATE: 4/6/2012</i>	16.65
<b>SUBTOTAL</b>		<b>26.85</b>
<b>GRAND</b>		<b>\$4,314.85</b>

**RECEIVED**

APR 30 2012

**SSC-MAILROOM**

DATE	DESCRIPTION	AMOUNT
TOTAL:		<hr/>

**ATTORNEY/PARALEGAL SUMMARY**

<u>TIMEKEEPER</u>	<u>RANK</u>	<u>HOURS</u>	<u>RATE</u>	<u>AMOUNT</u>
L. W Ingram, III	Member	12.80	335.00	\$4,288.00

**RECEIVED**  
APR 30 2012  
SSC-MAILROOM

**STOLL · KEENON · OGDEN**

PLLC

300 West Vine Street

Suite 2100

Lexington, Kentucky 40507-1801

(859) 231-3000

Tax Id # 61-0421389

June 14, 2012

Kentucky-American Water Company

American Water Company

SSC - A/P Dept.

Workbasket #A12ASST04

P.O. Box 5610

Cherry Hill, NJ 08034

12000934

MSX  
NA

A

INVOICE NO.: 720390

SKO File No.: 10311/142751

Please Remit This Page With Payment To:

**STOLL · KEENON · OGDEN**

PLLC

P.O. Box 11969

Lexington, Kentucky 40579-1969

Re: Northern Division Connection

Workbasket number: A12SEC09

Kentucky-American Water

Attn: Paula Squires

2300 Richmond Road

Lexington, KY 40502

Our Reference: 010311/142751/LWI/2404

Fees rendered this bill

\$ 4,891.00

Disbursements

\$ 27.60

**Total Current Charges This Matter**

**\$ 4,918.60**

**RECEIVED**

JUN 18 2012

**SSC-MAILROOM**

**STOLL · KEENON · OGDEN**  
 PLLC  
 300 West Vine Street  
 Suite 2100  
 Lexington, Kentucky 40507-1801  
 (859) 231-3000  
 Tax Id # 61-0421389  
 June 14, 2012

Kentucky-American Water Company  
 American Water Company  
 SSC - A/P Dept.  
 Workbasket #A12ASST04  
 P.O. Box 5610  
 Cherry Hill, NJ 08034

INVOICE NO.: 720390  
 SKO File No.: 10311/142751

Workbasket number: A12SEC09

Kentucky-American Water  
 Attn: Paula Squires  
 2300 Richmond Road  
 Lexington, KY 40502

MATTER NAME: Northern Division Connection

TOTAL FEES FOR PROFESSIONAL SERVICES PER ATTACHED 4,891.00

TOTAL CHARGES FOR EXPENSES AND OTHER SERVICES  
 PER ATTACHED 27.60

INVOICE TOTAL \$ 4,918.60

TOTAL BALANCE DUE \$4,918.60

**RECEIVED**

JUN 18 2012

**SSC-MAILROOM**

\*PLEASE INDICATE INVOICE NUMBER 720390 ON PAYMENT

**BILL DATE:** June 14, 2012

Kentucky-American Water Company  
 American Water Company  
 SSC - A/P Dept.  
 Cherry Hill, NJ 08034

**LEGAL FEES**

<b>DATE</b>	<b>IND</b>	<b>DESCRIPTION OF SERVICE</b>	<b>HOURS</b>	<b>RATE</b>	<b>AMOUNT</b>
05/10/12	LWI	Prepare for and meet with client re: feasibility study; consider revisions to same	1.50	335.00	\$ 502.50
05/13/12	LWI	Work on feasibility study	1.50	335.00	502.50
05/17/12	LWI	Work on application and permit review; telephone L. Williams re: same	2.50	335.00	837.50
05/29/12	LWI	Work to finalize application and feasibility study	2.10	335.00	703.50
05/30/12	LWI	Work to finalize documents and prepare to file	1.20	335.00	402.00
05/31/12	LWI	Continue work to finalize filing; prepare and make electronic filing; conference with client re: same; conference with PSC and AG re: same	5.80	335.00	1,943.00
<b>SUBTOTAL</b>			<b>14.60</b>		<b>\$4,891.00</b>

**EXPENSES AND OTHER SERVICES**

*\*\*note: all copies are billed at .10/page unless otherwise indicated*

<b>DATE</b>	<b>DESCRIPTION</b>	<b>AMOUNT</b>
05/21/12	Telephone Expense 1(502)564-8382; 2 Mins.	0.20
05/21/12	Telephone Expense 1(502)564-7013; 2 Mins.	0.20
05/31/12	Duplicating Charges	26.70
05/31/12	Duplicating Charges	0.10
05/31/12	Telephone Expense 1(502)696-5457; 2 Mins.	0.20
05/31/12	Telephone Expense 1(502)696-5457; 2 Mins.	0.20
<b>SUBTOTAL</b>		<b>27.60</b>

**RECEIVED**  
 JUN 18 2012  
 SSC-MAILROOM



**STOLL · KEENON · OGDEN**  
PLLC  
300 West Vine Street  
Suite 2100  
Lexington, Kentucky 40507-1801  
(859) 231-3000  
Tax Id # 61-0421389  
March 26, 2012

**RECEIVED**  
MAR 29 2012  
**SSC-MAILROOM**

Kentucky-American Water Company  
American Water Company  
SSC - A/P Dept  
Workbasket #A12ASST04  
P.O. Box 5610  
Cherry Hill, NJ 08034

12000934  
N/A  
AP  
↑

INVOICE NO.: 713501  
SKO File No.: 10311/142751

**Please Remit This Page With Payment To:**  
**STOLL · KEENON · OGDEN**  
PLLC  
P.O. Box 11969  
Lexington, Kentucky 40579-1969

Re: Northern Division Connection

Our Reference: 010311/142751/LWI/2404

Fees rendered this bill \$ 4,355.00

Disbursements \$ 17.75

**Total Current Charges This Matter \$ 4,372.75**



**STOLL · KEENON · OGDEN**  
 PLLC  
 300 West Vine Street  
 Suite 2100  
 Lexington, Kentucky 40507-1801  
 (859) 231-3000  
 Tax Id # 61-0421389  
 March 26, 2012

**RECEIVED**  
 MAR 29 2012  
 SSC-MAILROOM

Kentucky-American Water Company  
 American Water Company  
 SSC - A/P Dept.  
 Workbasket #A12ASST04  
 P.O. Box 5610  
 Cherry Hill, NJ 08034

INVOICE NO.: 713501  
 SKO File No.: 10311/142751

MATTER NAME: Northern Division Connection

TOTAL FEES FOR PROFESSIONAL SERVICES PER ATTACHED 4,355.00

TOTAL CHARGES FOR EXPENSES AND OTHER SERVICES  
 PER ATTACHED 17.75

INVOICE TOTAL \$ 4,372.75

**TOTAL BALANCE DUE \$4,372.75**

BILL DATE: March 26, 2012

Kentucky-American Water Company  
 American Water Company  
 SSC - A/P Dept.  
 Cherry Hill, NJ 08034

**RECEIVED**  
 MAR 29 2012  
 SSC-MAILROOM

**LEGAL FEES**

<u>DATE</u>	<u>IND</u>	<u>DESCRIPTION OF SERVICE</u>	<u>HOURS</u>	<u>RATE</u>	<u>AMOUNT</u>
03/13/12	LWI	Work on Northern Division connection application and review materials for same; telephone conference with Bridwell	3.00	335.00	\$ 1,005.00
03/14/12	LWI	Work on certificate case application; conference with L. Williams re: same; correspondence to client	3.00	335.00	1,005.00
03/15/12	LWI	Prepare letter to PSC; work on certificate case application	2.50	335.00	837.50
03/16/12	LWI	Work on application; receive and review related documents for project; various telephone conferences re: same	4.50	335.00	1,507.50
<b>SUBTOTAL</b>			<b>13.00</b>		<b>\$4,355.00</b>

**EXPENSES AND OTHER SERVICES**

*\*\*note: all copies are billed at .10/page unless otherwise indicated*

<u>DATE</u>	<u>DESCRIPTION</u>	<u>AMOUNT</u>
03/15/12	Duplicating Charges	1.00
03/15/12	Duplicating Charges	0.10
03/16/12	Long distance transportation, mileage frankfort 3/15 VENDOR: Bowman, Anthony; INVOICE#: 31612; DATE: 3/16/2012	16.65
<b>SUBTOTAL</b>		<b>17.75</b>
<b>GRAND TOTAL:</b>		<b>\$4,372.75</b>

**ATTORNEY/PARALEGAL SUMMARY**

<u>TIMEKEEPER</u>	<u>RANK</u>	<u>HOURS</u>	<u>RATE</u>	<u>AMOUNT</u>
L. W Ingram, III	Member	13.00	335.00	\$4,355.00

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

---

**Witness: Lance Williams**

48. Refer to "Engineering Feasibility Study Report for Supplying Kentucky American Water's Northern District Distribution System," Appendix C.
- a. Provide a table listing all of the construction overhead costs (e.g., design, engineering, construction inspections, permits, licenses, contingencies, etc.) that are associated with the proposed project.
  - b. State whether the overhead construction costs listed in the response to Item 48(a) are included in the Northern District Connection Project Cost Estimate.
    - (1) If yes, state where the overhead construction costs are reported.
    - (2) If no, explain why the overhead construction costs were not included in the Northern District Connection Project Cost Estimate.

**Response:**

a)

Design	\$393,960
Construction Administration	\$87,000
Bidding	\$9,000
Easement Development & Acquisition	\$100,000
Easement Purchase	\$94,000
BPS and Tank Site Purchase	\$81,250
Construction Inspection	\$170,000
Permitting	\$10,000
AFUDC	\$504,835
Contingencies	\$688,127

b) Yes, they are.

(1) Design, bidding, permitting, and easement development & acquisition are reported in line 6 of Appendix C. BPS and Tank Site Purchase are reported in line 7 of Appendix C. Easement Purchase is reported in line 8 of Appendix C. Construction Administration and Construction Inspection are reported in line 9 of Appendix C. AFUDC and Contingencies are reported in line 10 of Appendix C.

(2) Not applicable.

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

---

**Witness: Lance Williams**

49. Refer to "Engineering Feasibility Study Report for Supplying Kentucky American Water's Northern District Distribution System" at 5.
- a. For each capital improvement project listed in the table, list all required governmental permits, licenses, and other approvals.
  - b.
    - (1) For each capital improvement project, state whether a Certificate of Public Convenience and Necessity is required. Explain.
    - (2) For any project that would require a Certificate of Public Convenience and Necessity, state the expected costs of obtaining such certificate.

**Response:**

- a) The anticipated permits required for the projects are outlined below:
  - Chemical Bulk Storage Improvements Project – Kentucky Division of Water Construction Permit
  - Pretreatment Reliability Improvements Project – Kentucky Division of Water Construction Permit
  - Residuals Handling Improvements Project – Kentucky Division of Water Construction Permit, Kentucky Division of Water Quality Certification
  - Filter Reliability Improvements Project – Kentucky Division of Water Construction Permit
  - Emergency Power Reliability Improvements – No permits anticipated.
  - SCADA Improvements – No permits anticipated
  - Raw Water Intake Improvements – Kentucky Division of Water Construction Permit, US Army Corps of Engineers Permit, Kentucky Division of Water Quality Certification, Kentucky Division of Water Stream Construction Permit
  - New Storage Tank – Kentucky Division of Water Construction Permit
- b)
  - 1) At this time, KAW has not performed the legal research necessary to make final determinations as to which of the Owenton Water Treatment Plant projects would require a certificate of public convenience and necessity ("CPCN") if the CPCN requested in this matter is not granted. If the requested CPCN is not granted, KAW would likely seek an opinion letter from Commission Staff as to the necessity of a CPCN for the required improvements at the Owenton Water Treatment Plant. Having said that, KAW believes that a CPCN would be required and, therefore, would seek a CPCN for the entire improvement project which would include every individual project set forth in the Feasibility Study.
  - 2) Pursuing a CPCN for improvements to the Owenton Water Treatment Plant would mean legal and support services costs similar to those in this matter. Please see KAW's response to Commission Staff's Request No. 47 for those

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

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estimates. As with any litigated case, the expense can vary drastically depending on the level of discovery, intervention, opposition and appeals.

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

---

**Witness:     Linda Bridwell**

50.     State Kentucky-American's present revenue requirement and rate base assuming approval and construction of the proposed facilities. State all assumptions, show all calculations, and provide all work papers to reach this result. If the requested information exists in a Microsoft Excel format, also provide in such format.

**Response:**

Please refer to the attached Excel spreadsheet, which is also included in .pdf format.

**KRS II Option****O&M Costs as Filed in Case No. 2012-00096****Depreciation & Income Tax as Calculated**

Line #	Incremental O&M	2014	2015	2016	2017	2018	2019	2020
1	Labor	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2	Chemical	\$ 40,292	\$ 40,292	\$ 40,292	\$ 43,113	\$ 46,113	\$ 49,360	\$ 52,815
3	Fuel & Power KRS II	\$ 93,612	\$ 102,973	\$ 113,270	\$ 124,597	\$ 137,057	\$ 150,762	\$ 165,839
4	Fuel & Power New Booster Station	\$ 16,662	\$ 18,328	\$ 20,161	\$ 22,177	\$ 24,395	\$ 26,835	\$ 29,518
5	<b>Total</b>	<b>\$ 150,566</b>	<b>\$ 161,593</b>	<b>\$ 173,723</b>	<b>\$ 189,887</b>	<b>\$ 207,565</b>	<b>\$ 226,957</b>	<b>\$ 248,172</b>
6								
7	Incremental Depreciation	\$ 249,913	\$ 249,913	\$ 249,913	\$ 249,913	\$ 249,913	\$ 249,913	\$ 249,913
8	Incremental Amortization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
9	General Tax	\$ 103,875	\$ 103,875	\$ 103,875	\$ 103,875	\$ 103,875	\$ 103,875	\$ 103,875
10	Income Tax (Expense Effect)	\$ (196,194)	\$ (200,483)	\$ (205,202)	\$ (211,490)	\$ (218,366)	\$ (225,910)	\$ (234,163)
11	Income Tax (Interest Effect)	\$ (184,440)	\$ (184,440)	\$ (184,440)	\$ (184,440)	\$ (184,440)	\$ (184,440)	\$ (184,440)
12	<b>Total Non-Rate Base Cost</b>	<b>\$ 123,721</b>	<b>\$ 130,458</b>	<b>\$ 137,870</b>	<b>\$ 147,746</b>	<b>\$ 158,547</b>	<b>\$ 170,395</b>	<b>\$ 183,358</b>
13								

Line #	Incremental Capital <sup>1</sup>	Amount	Depreciation			Annual
			Rate	Subsidiary	Description	Depreciation & COR Expense
15	Phase 1 - US 127 Material Cost	\$ 1,472,260	1.66%	331300	TD Mains 10in to 16in	\$ 24,440
16	Phase 1 - US 127 Construction Contractor Costs	\$ 2,792,219	1.66%	331300	TD Mains 10in to 16in	\$ 46,351
17	Phase 2 Materials Costs	\$ 1,685,357	1.66%	331300	TD Mains 10in to 16in	\$ 27,977
18	Phase 2 Construction Contractor Costs	\$ 2,352,760	1.66%	331300	TD Mains 10in to 16in	\$ 39,056
19	Phase 3 Constructions Costs (Includes Materials) - 83% for Tanks	\$ 3,041,203	2.03%	330100	Elevated Tanks & Standpip	\$ 61,736
20	Phase 3 Constructions Costs (Includes Materials) - 17% for Pumping Equipment and Controls	\$ 622,897	2.43%	311540	Pumping Equipment TD Weighted Average, Depreciation	\$ 15,136
21	Design, Easement Development & Acquisition	\$ 512,960	1.79%		Lines 14 - 19	\$ 9,203
22	BPS and Tank Site Purchase	\$ 81,250	0.00%	303500	Land & Ld Rights TD	\$ -
23	Easement Purchase	\$ 94,000	0.00%	303501	Land & Ld Rights TD Weighted Average, Depreciation	\$ -
24	Construction Administration & Inspection	\$ 257,000	1.79%		Lines 14 - 19 Weighted Average, Depreciation	\$ 4,611
25	9.2% Misc.	\$ 1,192,962	1.79%		Lines 14 - 19	\$ 21,403
26		<b>\$ 14,104,868</b>				<b>\$ 249,913</b>
27						

<sup>1</sup> - See Appendix C of Application

30	Interest (Total Investment x Weighted Cost of Debt, Case 2010-00036)	\$ 474,138.35
31	<b>Interest Tax Effect (Interest x .389)</b>	<b>\$ (184,439.82)</b>

**Owenton WTP Option****O&M Costs as Filed in Case No. 2012-00096****Depreciation & Income Tax as Calculated**

Line #	Continued O&M	2014	2015	2016	2017	2018	2019	2020
1	Labor	\$ 362,653	\$ 373,532	\$ 384,738	\$ 396,280	\$ 408,169	\$ 420,414	\$ 433,026
2	Chemical	\$ 222,307	\$ 222,307	\$ 222,307	\$ 237,868	\$ 254,519	\$ 272,336	\$ 291,399
3	Fuel & Power	\$ 141,320	\$ 150,126	\$ 153,529	\$ 168,882	\$ 185,770	\$ 204,347	\$ 224,782
4	Sludge Disposal	\$ 32,083	\$ 33,687	\$ 35,371	\$ 37,140	\$ 38,997	\$ 40,947	\$ 42,994
5	<b>Total</b>	<b>\$ 758,363</b>	<b>\$ 779,652</b>	<b>\$ 795,945</b>	<b>\$ 840,170</b>	<b>\$ 887,455</b>	<b>\$ 938,044</b>	<b>\$ 992,201</b>
6								
7	Incremental Depreciation	\$ 329,090	\$ 329,090	\$ 329,090	\$ 329,090	\$ 329,090	\$ 329,090	\$ 329,090
8	Incremental Amortization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
9	General Tax	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
10	Income Tax (Depreciation Only)	\$ (128,016)	\$ (128,016)	\$ (128,016)	\$ (128,016)	\$ (128,016)	\$ (128,016)	\$ (128,016)
11	Income Tax (Interest Only)	\$ (149,070)	\$ (149,070)	\$ (149,070)	\$ (149,070)	\$ (149,070)	\$ (149,070)	\$ (149,070)
12	<b>Total Non-Rate Base Cost</b>	<b>\$ 810,367</b>	<b>\$ 831,656</b>	<b>\$ 847,949</b>	<b>\$ 892,174</b>	<b>\$ 939,459</b>	<b>\$ 990,048</b>	<b>\$ 1,044,205</b>

13

14	Incremental Capital <sup>2</sup>	Capital Investment	Depreciation Rate	Subsidiary	Description	Annual Depreciation & COR Expense
15	Chemical Bulk Storage Improvements	\$ 2,100,000	2.59%	320100	WT Equip Non-Media	\$ 54,390
16	Pretreatment Reliability Improvements	\$ 1,200,000	2.59%	320100	WT Equip Non-Media	\$ 31,080
17	Residuals Handling Improvements	\$ 1,800,000	2.59%	320100	WT Equip Non-Media	\$ 46,620
18	Filter Reliability Improvements	\$ 1,700,000	2.59%	320100	WT Equip Non-Media	\$ 44,030
19	Emergency Power Reliability Improvements	\$ 600,000	2.93%	310000	Power Generation Equip	\$ 17,580
20	SCADA Improvements	\$ 300,000	20.00%	340330	Comp Software Other	\$ 60,000
21	Raw Water Intake Improvements	\$ 1,400,000	2.05%	306000	Lake, River & Other Intak	\$ 28,700
22	New Storage Tank	\$ 2,300,000	2.03%	330100	Elevated Tanks & Standpip	\$ 46,690
23		<b>\$ 11,400,000</b>				<b>\$ 329,090</b>

24

25 <sup>2</sup>- See Page 5 of Feasibility Report in Case No. 2012-0096

26

27	Interest (Total Investment x Weighted Cost of Debt, Case 2010-00036)	\$ 383,213.60
28	<b>Interest Tax Effect (Interest x .389)</b>	<b>\$ (149,070.09)</b>



Kentucky American Water  
Case No. 2012-00096  
PSC DR1 50  
Present Revenue Requirement and Rate Baes Assuming Construction of Proposed Facilities

Line Number	Description	Revenue Requirement Per Books 12 Months Ended June 2012	Adjustment for Capital Investment and Increased Production Costs at KRS II	Adjustment for Elimination of Productions Costs at Owenton WTP	Adjusted	Total Variance in Revenue Requirement
1	Revenue	\$ 84,092,999			\$ 84,092,999	
2					\$ -	
3	O&M Expense	\$ 32,664,816	\$ 150,566	\$ (758,363)	\$ 32,057,019	
4	Depreciation	\$ 9,077,306	\$ 249,913		\$ 9,327,219	
5	Amortization	\$ 2,205,076			\$ 2,205,076	
6	General Tax	\$ 4,495,023	\$ 103,875		\$ 4,598,898	
7	Income Tax	\$ 10,117,375	\$ (380,634)	\$ 295,003	\$ 10,031,745	
8	Sum	\$ 58,559,596	\$ 123,721	\$ (463,360)	\$ 58,219,957	
9						
10	<b>Utility Operating Income (Line 1 - Line 8)</b>	<b>\$ 25,533,403</b>			<b>\$ 25,873,042</b>	
11						
12	Rate Base	\$ 351,990,031	\$ 14,104,868	\$ -	\$ 366,094,899	
13	Authorized Cost of Capital	7.74%			7.74%	
14	<b>Authorized Utility Operating Income</b>	<b>\$ 27,244,028</b>			<b>\$ 28,335,745</b>	
15						
16	Deficiency	\$ 1,710,625			\$ 2,462,703	
17						
18	Gross Up	1.6515716			1.6515716	
19						
20	<b>Grosse Up Deficiency</b>	<b>\$ 2,825,220</b>			<b>\$ 4,067,330</b>	
21						
22						
23	<b>Total Revenue Requirement 12 Mos. Ended</b>	<b>\$ 86,918,219</b>			<b>\$ 88,160,329</b>	<b>\$ 1,242,110</b>

Kentucky American Water  
Case No. 2012-00096  
PSC DR1 51  
Present Revenue Requirement and Rate Base Assuming Construction of Improvements Needed at Owenton WTP

Line Number	Description	Revenue Requirement Per Books		Adjustment for Capital Investment		Adjusted	Total Variance in Revenue Requirement
		12 Months Ended June 2012					
1	Revenue	\$	84,092,999			\$ 84,092,999	
2						\$ -	
3	O&M Expense	\$	32,664,816			\$ 32,664,816	
4	Depreciation	\$	9,077,306	\$	329,090	\$ 9,406,396	
5	Amortization	\$	2,205,076			\$ 2,205,076	
6	General Tax	\$	4,495,023			\$ 4,495,023	
7	Income Tax	\$	10,117,375	\$	(277,086)	\$ 9,840,289	
8	Sum	\$	58,559,596	\$	52,004	\$ 58,611,600	
9							
10	<b>Utility Operating Income (Line 1 - Line 8)</b>	\$	<b>25,533,403</b>			\$ <b>25,481,399</b>	
11							
12	Rate Base	\$	351,990,031	\$	11,400,000	\$ 363,390,031	
13	Authorized Cost of Capital*		7.74%			7.74%	
14	<b>Authorized Utility Operating Income</b>	\$	<b>27,244,028</b>			\$ <b>28,126,388</b>	
15							
16	Deficiency	\$	1,710,625			\$ 2,644,989	
17							
18	Gross Up*		1.6515716			1.6515716	
19							
20	<b>Grosse Up Deficiency</b>	\$	<b>2,825,220</b>			\$ <b>4,368,389</b>	
21							
22							
23	<b>Total Revenue Requirement 12 Mos. Ended</b>	\$	<b>86,918,219</b>			\$ <b>88,461,388</b>	\$ <b>1,543,169</b>

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

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**Witness:     Linda Bridwell**

51.     State Kentucky-American's present revenue requirement and rate base assuming approval and construction of the capital improvements necessary to maintain the Owenton Water Treatment Plant. State all assumptions, show all calculations, and provide all work papers to reach this result. If the requested information exists in a Microsoft Excel format, also provide in such format.

**Response:**

Please refer to the response to Item 50 of this same data request.

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

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**Witness: Lance Williams**

52. Explain why the water storage tank at Monterey should be decommissioned.

**Response:**

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

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

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

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

- 2) **Energy efficiency** - The existing Monterey Tank is at a lower elevation than the new tank (650 max EL vs. 880 max EL). Therefore pressure energy created by the existing KRS II high service pumps would be dissipated by filling the existing Monterey Tank. From an elevation perspective, much more energy would then be required to pump the same volume of water from the existing tank to Owenton.
- 3) **Reduce maintenance costs and maintain a higher water quality** - The current service area supplied by the existing tank can be provided with adequate supply volume and pressure without the tank in service if the proposed project is completed. Decommissioning the tank will therefore reduce the maintenance and upkeep costs associated with the existing tank.

Moreover, if the proposed project is completed and the existing tank was left in service, the existing Monterey Tank would turn over much less frequently. This is because customers on the south side of Cedar Creek will be supplied from the transmission main, reducing demand on the current tank service area. Less frequent tank turn over results in increased water age, which can result in decreased water quality.

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

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**Witness:**      **Lance E. Williams, PE**

53.      Describe the present condition of the Fairgrounds Water Storage Tank.

**Response:**

Please see the report, Evaluation of the 400,000 Gallon Steel Single Pedestal Tank "Fairgrounds Tank," dated June 9, 2011, which is attached to the response to PSC Data Request No. 54. The description of the present condition is located on page 2 of the report.

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

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**Witness: Lance Williams**

54. Provide all reports of inspections and maintenance performed on the Fairgrounds Water Storage Tank since January 1, 2006.

**Response:**

The following reports are attached:

Evaluation of the 400,000 Gallon Steel Single Pedestal Tank "Fairgrounds Tank," dated June 9, 2011

Contract Documents and Specifications for Repairing and Repainting the Interior Wet Interior Dry, and Exterior of One 400,000 Gallon Steel Elevated Tank, dated October 11, 2006

Evaluation of the 400,000 Gallon Steel Single Pedestal Tank "Fairgrounds Tank," dated March 22 and June 8, 2006

# TANK INDUSTRY CONSULTANTS

**EVALUATION OF THE  
400,000 GALLON STEEL SINGLE PEDESTAL TANK  
“FAIRGROUNDS TANK”  
OWENTON, KENTUCKY  
FOR  
KENTUCKY AMERICAN WATER  
LEXINGTON, KENTUCKY**

**June 9, 2011**

11.035.H310.012

FM

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June 24, 2011

Mr. Lance Williams  
Director of Engineering  
Kentucky American Water Company  
2300 Richmond Road  
Lexington, Kentucky 40502

**SUBJECT:**

The subject of this report is the update field evaluation of the 400,000 gallon steel single pedestal tank in Owenton, Kentucky. The tank was owned by Kentucky American Water and was known as the "Fairgrounds Tank." The update field evaluation was performed on June 9, 2011 by Gregory P. Cannon, Harold H. Knight, and Jeremiah Plake of Tank Industry Consultants. The Owner's representative on the site at the time of the field evaluation was Mr. Richard Hawthorn. The tank was previously evaluated by Tank Industry Consultants on March 22 and June 8, 2006. In 2006, Tank Industry Consultants prepared Detailed Technical Specifications for the repair and repainting of the tank. In 2008 the intended rehabilitation project was initiated but not completed. The single pedestal tank was of welded steel construction. According to information on the tank nameplate, the tank was built in 1984 by Pitt-Des Moines, Inc., under contract number 58035, and had a capacity of 400,000 gallons. The tank nameplate also stated that the container diameter was 55 ft.

**OBJECTIVE:**

The purpose of this update evaluation was to determine the condition of the tank interior wet, interior dry, exterior, exposed foundation, and accessories. The interior evaluation was performed by a diver with the tank full of water. Due to the limited sight and presence of silt inside the tank, only a small amount of the interior bowl could be examined during the field evaluation. The purpose of this report is to present the findings of the evaluation and to make recommendations for recoating, repairing, corrosion protection, and maintenance. Budget estimates for the work, anticipated life of the coating and the structure, and the replacement cost of the tank are also included.

**AUTHORIZATION:**

This evaluation and report were authorized in Task Order KY-11-TIC-01 signed by Mr. Lance E. Williams, P.E., and dated February 25, 2011.

## **SUMMARY:**

**Exterior Coating:** The exterior coating system was in very poor condition and not providing adequate corrosion protection. Tank Industry Consultants believes that the exterior surfaces should be painted within the next 6 months from a corrosion standpoint. Although the existing coating had fair adhesion, due to the extent of failure of the existing exterior coating, much of the exterior will require complete cleaning and repainting, therefore, topcoating is not the recommended option.

**Interior Dry Coating:** The interior dry coating system appeared to be in adequate overall condition and providing adequate corrosion protection. Tank Industry Consultants believes that the interior dry surfaces should not need to be repainted within the next 4 to 5 years from a corrosion standpoint. However, the interior dry surfaces should be re-evaluated in 3 to 4 years to determine a more precise recoating schedule. Due to the very good adhesion of the existing interior dry coating system, spot cleaning and spot coating will be a viable option if performed before the existing coating adhesion deteriorates further. The interior dry coating system should be evaluated immediately prior to preparing specifications to determine if the coating adhesion is still adequate to accept a topcoat.

**Interior Wet Coating:** The interior wet coating system was in very poor overall condition as widespread corrosion was noted. Tank Industry Consultants recommends that the interior surfaces of this tank should be recoated within the next 6 months due to the extent of coating failure and corrosion noted. It is recommended that when the interior is completely cleaned and repainted, an epoxy coating system should be used.

**ANSI/OSHA and Safety-Related Deficiencies:** There were OSHA and safety-related deficiencies on this tank. These deficiencies included:

- ◆ the interior dry ladder rungs were not of slip-resistant design,
- ◆ conduits and cables were attached to the base cone, support column, and access tube ladders which could interfere with the climber's use of the side rails,
- ◆ the support column, ventilation manhole, and access tube ladder side rails were not precisely large enough,
- ◆ the support column, ventilation manhole, and access tube ladder head clearances were not large enough,
- ◆ the support column and access tube ladder rungs were not spaced at consistent 12 in. intervals,
- ◆ the interior dry platform access openings were not equipped with curbs or covers,
- ◆ the rust on the container ladder safe-climbing device will likely interfere with its operation,
- ◆ the container ladder rungs were not of slip-resistant design,
- ◆ the access tube and interior container ladder safe-climbing devices were loose, and
- ◆ the rust tubercles on the interior container ladder could cut the climbers hands.

If the Owner wishes to fully comply with OSHA and safety-related standards, it is recommended that these deficiencies be rectified.

**Sanitary, AWWA, and Operational Deficiencies:** There were sanitary and operating deficiencies on this tank as well. These deficiencies included:

- ◆ the base cone door was not locked prior to or after this field evaluation,

*400,000 Gallon Single Pedestal, "Fairgrounds Tank"  
Kentucky American Water, Owenton, Kentucky*

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- ◆ an unplugged coupling was located in the access tube projection above the roof,
- ◆ the access tube roof manhole was not locked.

These deficiencies should be corrected.

The safety-related, sanitary, and operating deficiencies listed above are not intended to be a complete list of deficiencies on this tank. The Owner should refer to the complete report text and accompanying photographs for a complete account of all observed deficiencies.

This evaluation and the reporting of the condition of this tank do not warrant the original structural condition of the tank or any of the original design for seismic loadings. Likewise, recommendations for this tank do not include modifications which may be required for compliance with present structural codes.

## **PHOTOGRAPHS:**

Color photographs were taken of the visible portions of the foundation, the tank interior wet, interior dry, and exterior and are included as a part of this report. The significant photographs are keyed to the observations.

## **NOMENCLATURE:**

The terms used in describing the various components of steel water tanks are unique to the industry. In fact, the terms vary from firm to firm and from person to person. In an attempt to define the terms used in this report, a sketch of the general type of tank covered is included at the end of the narrative portion of this report. **Warning: Some appurtenances on this tank may be referred to as erection or rigging attachments, lugs, or brackets. This does not mean that they are safe for rigging. Each attachment for each tank should be evaluated on an individual basis by a structural engineer or an experienced rigger before being used. These devices may have been intended for only the original erectors and painters to use with specialized equipment.**

## **ADHESION TESTS:**

All adhesion tests performed during this evaluation were done in general accordance with ASTM D3359. The results are reported herein using the ASTM scale. The ASTM scale is a relative scale to rate adhesion from 0 to 5 with 5 being the best. A table of adhesion test results classification is included with this report following the sketch of the tank.

## **HEAVY METALS TESTS:**

Samples of the exterior, interior dry, and interior wet coating systems were sent to a laboratory for atomic absorption analyses. The test results were as follows:

400,000 Gallon Single Pedestal, "Fairgrounds Tank"  
Kentucky American Water, Owenton, Kentucky

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	Cadmium		Chromium		Lead	
	mg/kg	Percent	mg/kg	percent	mg/kg	percent
Exterior	<25	<0.0025%	<250	<0.025%	<250	<0.025%
Interior Dry	<25	<0.0025%	<250	<0.025%	<250	<0.025%
Interior Wet	<25	<0.0025%	<250	<0.025%	<250	<0.025%

Tank Industry Consultants performs this test only to determine if there is lead, chromium or cadmium present in the coating samples. To limit damage to the existing coating, only small areas were tested. The small number of samples taken and the difficulty of retrieving all primer from the steel profile may cause the tests performed to not accurately represent the total coating system. Variations in thickness, types of coatings applied, and the interim cleaning and painting operations will also affect the actual readings. The reliability of the results is also dependent on the amount of primer included in the sample. The Consumer Product Safety Commission specifies that an amount greater than 0.27% lead is considered potentially hazardous. Additional testing to determine the amount of leachable contaminants present in the spent cleaning debris will need to be performed following cleaning operations at the time of repainting. Results from the laboratory analysis are included following the adhesion tables.

## **OBSERVATIONS:**

The condition of the items not referred to in the OBSERVATIONS section of this report appeared to be in approximately the same condition as they were at the time of the last evaluation.

### **A. Foundation and Site**

No significant changes were noted in the tank site, or surrounding area since the previous evaluation. The tank site grading was uneven. There was a hydrant noted on the site, southeast of the tank. A ditch surrounded the tank. The ditch contained apparent containment anchors that had not been removed from the site. Random hairline cracking, rust staining, exposed aggregate, mildew, efflorescence, and minor pop outs were observed in the tank foundation. The bush that was growing adjacent to the tank ringwall at the time of the last evaluation had been removed.

### **B. Exterior Pedestal and Container**

#### **OVERFLOW PIPE:**

Air Break: 15 in.  
Elastomeric Check Valve: yes  
Projection: 4 ft from base cone  
Splash Pad: rip rap

400,000 Gallon Single Pedestal, "Fairgrounds Tank"  
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#### ROOF OPENINGS:

Access Tube Manhole Vent: open hole

#### Container Roof Manhole #2:

Size: 24 in. diameter

Type: flanged and bolted

Curb: 6 in. to 7-1/2 in.

Cover: 33-1/8 in. diameter x 1/4 in. thick

Bolts:

Number: 8

Size: 3/4 in. diameter x 2 in. long

Welded: exterior

Cover Chain: no

Locked: yes

#### Roof Vent:

Type: aluminum, clog-resistant vent

Neck Height: 8 in.

Neck Diameter: 24 in.

Screen Orientation: horizontal

Cover: 56 in. diameter

#### EXTERIOR COATING AND METAL CONDITION:

	Coating Thickness		Approx. % Failure to		Adhesion	Metal Loss	
	Range	Typ.	Underlying Coating	Rust		Typical	Deepest
Base Cone	2 mils to 6 mils	3.5 mils	40%	7%	3 T	Neg.	Neg.
Support Column	3.5 mils to 9.5 mils	5 mils	5%	15%	3 T	Neg.	Neg.
Bowl	4.5 mils to 9.5 mils	6 mils	15%	< 1%	3 T	Neg.	Neg.
Shell	3.5 mils to 8 mils	5 mils	25%	5%	3 T	Neg.	Neg.
Roof	2.5 mils to 10 mils	5.5 mils	10%	8%	3 S	1/32 in.	1/16 in.

#### Key to Table

Adhesion 5 (very good)  
4 (good)  
3 (fair)  
2 (poor)  
1 (very poor)  
0 (very poor)

T = Topcoat to Underlying Coating

S = Primer to Steel

Neg. = negligible

The coating on the exterior of the container and pedestal was in very poor overall condition as widespread corrosion and topcoat failures were noted. Significantly more coating failure to the underlying coating and rust was observed. The exterior coating exhibited fair adhesion to the underlying coating and steel.

The tank nameplate had been removed from the tank and was found in the interior dry area of the tank. A new stainless steel bracket for the nameplate had been welded to the base cone door. Erection welds were noted on the base plate below the access door.

*400,000 Gallon Single Pedestal, "Fairgrounds Tank"  
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The overflow pipe had been equipped with a new elastomeric check valve. The overflow discharged above an area with some rip rap.

The vent on the access tube roof manhole vent had been removed, resulting in an 8 in. diameter uncovered opening in the cover. A second roof manhole had been installed in the roof. The roof manhole was flanged and bolted and equipped with a gasket. The manhole cover was not equipped with retaining chains to secure the cover to the roof. The manhole cover was not painted and was equipped with two 1/2 in. diameter handles. The roof was equipped with a new aluminum, clog-resistant vent. The vent was equipped with a security shroud. That was an unpainted exhaust flanged nozzle noted. The proper operation of the vent pallets was not verified at the time of this evaluation.

Thirty-six containment outrigger lugs had been installed on the upper shell of the tank. Sixty-five outrigger lugs had been installed on the roof. Ten outer, 6 middle, and 3 inner 1-1/4 in. diameter Phoenix couplings had been installed on the roof. There was evidence that a containment tree had been removed from the roof. Four abandoned pads were observed on the roof fingers, and 7 erection burrs were noted on top of the access tube.

### C. Interior Dry

INTERIOR DRY LIGHTING OPERATIONAL: no

LOWER PLATFORMS SAFETY RAILING HANDRAIL: 2 in. x 2 in. x 3/8 in., angle

TOP PLATFORM ACCESS OPENING:

Size: 30 in. x 36 in.

Curb: 6 in. x 1/4 in.

Overlap: 2 in. x 1/4 in.

Cover: yes

INTERIOR DRY COATING AND METAL CONDITION:

	Coating Thickness		Approx. % Failure to		Adhesion	Metal Loss	
	Range	Typical	Primer	Rust		Typical	Deepest
Base Cone	2 mils to 6 mils	3.5 mils	< 1/2%	1%	5 S	Neg.	Neg.
Support Column	3 mils to 9 mils	5 mils	Neg.	< 1/2%	5 S	Neg.	Neg.
Dry Bowl	3 mils to 7.5 mils	4.5 mils	Neg.	< 1/2%	5 S	Neg.	Neg.
Access Tube	4.5 mils to 7.5 mils	5.5 mils	Neg.	< 1%	5 S	Neg.	Neg.

#### Key to Table

Adhesion 5 (very good)  
4 (good)  
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0 (very poor)

T = Topcoat to Underlying Coating

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Neg. = negligible

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The coating on the interior dry surfaces of the tank appeared to be in good overall condition and providing adequate corrosion protection. Slightly more coating failure was noted in the base cone interior. The interior dry coating exhibited very good adhesion to the steel.

The tank was equipped with incandescent, single-globe light fixtures. None of the lights were working at the time of this evaluation.

Four 6 in. x 4 in. x 3/8 in. flat bar brackets had been installed on the lower portion of the base cone interior. The brackets were not painted and had rusted. Two antenna cables were attached to the base cone ladder. The platform handrails had been replaced. The new handrails were not painted and were covered with surface rust. The new manhole covers hit the support column when opened fully. The davit arm for the container ventilation manhole cover was broken.

The irregular rung spacing on the support column and access tube ladders had been eliminated. The safe-climbing device on the access tube ladder was loose.

A 23-1/2 in. diameter hole had been cut in the top platform angle and the 5 in. x 1-5/8 in. stiffener support the top platform.

#### **D. Interior Wet Container**

##### INTERIOR SHELL STIFFENING RAIL:

Size: 8 in. x 1 in., flat bar

Gussets: 2 in x 1/2 in. thick

INTERIOR CONTAINER LADDER NUMBER OF RUNGS: 39

##### INLET/OUTLET PIPE:

Projection: 12 in. to 24 in.

Protective Cover: yes, removable

##### INTERIOR WET COATING AND METAL CONDITION:

	Coating Thickness		Approx. % Failure to		Adhesion	Metal Loss	
	Range	Typical	Primer	Rust		Typical	Deepest
Roof	9 mils to 16 mils	11.5 mils	Neg.	10%	4 S	Neg.	Neg.
Shell	-	-	Neg.	1%	-	Neg.	0.03 in.
Bowl	-	-	Neg.	< 1/2%	-	Neg.	0.03 in.

##### Key to Table

Adhesion 5 (very good)  
4 (good)  
3 (fair)  
2 (poor)  
1 (very poor)  
0 (very poor)

T = Topcoat to Underlying Coating  
S = Primer to Steel

Neg. = negligible

The interior wet coating was in very poor overall condition as widespread corrosion was noted. Widespread peeling, and coating coming off in sheets was observed. Pitting was observed in the shell and bowl. Clustered blistering was also observed.

Minor metal loss was noted on the interior container ladder, and the ladder safe-climbing device was loose.

## **RECOMMENDATIONS:**

### **A. Foundation and Site**

1. **Site Maintenance:** The site should be regraded so that the foundation projects a minimum of 6 in. to a maximum of 12 in. above grade, and so that proper drainage away from the foundation occurs. Site maintenance should be performed with the mower discharge directed away from the base of the tank to prevent rock chips in the coating and the accumulation of grass on the base plate and foundation and around the anchor bolts and gussets. The dead vegetation should be removed from around the overflow concrete splash pad.

2. **Site Access and Restoration:** Contractor and heavy equipment access to the site would be extremely difficult due to the small size of the site. The open areas immediately adjacent to the site may be workable for a contractor to stage equipment. The fence will likely need to be removed during rehabilitation operations and temporary fencing installed in order to allow adequate access for heavy equipment. Provisions should be included in the specifications for the restoration of any fences, sod, or other surfaces and structures disturbed by the contractor's work.

3. **Tank and Site Security:** Water tanks have been defined by some courts under certain circumstances as attractive nuisances. As such, there may be a significant potential liability to the Owner for injury to persons on the tank and tank site, even if access is not authorized. Recent events have prompted the entire water industry to consider measures that inhibit intentional acts that could threaten the water supply. A review of the security requirements for the tank and site is recommended to confirm that the existing measures are consistent with the Owner's security requirements for their water system. Primary tank and site security should be focused on eliminating, preventing, and detecting unauthorized access to the tank. Such security measures might include routinely and periodically verifying all doors, manholes, and gates are locked. Other security measures might include installing site lighting, motion detectors, surveillance cameras, no trespassing signs, alarms on gates, doors, and tank manholes, and arranging more frequent site visits by law enforcement agencies. At a minimum, the base cone door should be locked.

4. **Foundation:** If the foundation should deteriorate prior to performing other tank rehabilitation operations, any unsound concrete should be chipped to sound material and the concrete should be brush-off blasted. Any deteriorated areas or voids found should have a bonding agent and a vinyl emollient modified concrete patching mortar applied to build up the surface to its original contour. The concrete should then be painted with a concrete sealer.

5. **Grout Maintenance:** All loose grout should be chipped away to solid material when the tank is empty. Any shim plates which can be easily removed should be taken out. Any voids in the grout should be filled with a nonshrinking, nonstaining, structural grout material. The grout should be



placed as far back under the base plate as possible and squared off vertically with the edge of the base plate. Any gap between the steel base plate and the grout should be filled with a flexible sealant.

## **B. Exterior Surfaces**

1. **Life of the Exterior Coating:** The exterior coating system was in very poor condition and not providing adequate corrosion protection. Tank Industry Consultants believes that the exterior surfaces should be painted within the next 6 months from a corrosion standpoint. Although the existing coating had fair adhesion, due to the extent of failure of the existing exterior coating, much of the exterior will require complete cleaning and repainting, therefore, topcoating is not the recommended option.

2. **Coating Testing:** Prior to preparation of specifications for the cleaning and coating of the exterior of the tank, several samples of the exterior coating system should be subjected to laboratory analysis to test for ingredients which may at that time be subject to regulations concerning their handling and disposal.

3. **Cleaning:** When the exterior is to be cleaned, all varieties of containment should be investigated. Containment of the wind-blown debris and paint droplets may be required due to the proximity of the nearby residence.

### **4. Recommended Coating System:**

a. **Complete Cleaning and Recoating:** The optimum long-life coating system presently available for this site is an epoxy-polyurethane coating system. Properly formulated and applied polyurethanes have good resistance to condensation, mildew, and chipping. The polyurethanes also have excellent color and gloss retention and the longest expected service life of any of the common exterior tank coatings. The typical life of a properly applied epoxy-polyurethane coating system is approximately 15 to 20 years. These coatings are also presently manufactured to meet current VOC requirements.

b. **Coating Application:** When the tank is to be repainted, the tank should be completely cleaned and repainted. The entire tank exterior should be cleaned to the equivalent of an SSPC-SP 6, Commercial Blast Cleaning and have an epoxy-primed, epoxy intermediate and polyurethane finish coating system applied. However, care must be taken during the application of this particular coating system because this coating does have poor dry-fall characteristics, and potential damage to the surrounding property must be taken into consideration. The polyurethane coatings also require close monitoring of temperature and humidity during application

5. **Effective Service Life:** Tank Industry Consultants defines the life of a coating as the amount of time before repainting becomes necessary due to coating failure and corrosion. During the coating life the Owner should expect the coating to lose its gloss, start to chalk, show signs of weathering, and possibly some rust staining. Future touch-up may be required on isolated coating failures. If aesthetics are a concern, the Owner may have to topcoat the repainted tank prior to the end of the expected service life. However, future topcoating would be less expensive than complete cleaning and recoating and could delay the next complete cleaning and repainting for many years.

6. **Other Systems:** With air emission volatile organic compounds (VOC) restrictions being put in place around the nation, alternative coating systems may become available which would be viable options for this tank. The Owner should review the available systems prior to preparing specifications for the recoating project.

7. **Coating Curing:** It would be more economical to paint the tank exterior at the same time the interior wet is painted, since the tank must be drained while the exterior is painted, and the applied coatings cure. This will also reduce mobilization and observation costs.

8. **Grinding and Bracket Removal:** Any unused brackets or erection lugs should be removed prior to the exterior repainting. Any weld burrs, weld spatter, or erection scars should be ground off to provide a smooth surface for the application of the coating.

9. **Rehabilitation Schedule:** To obtain the lowest possible prices for the work outlined in the recommendations, the Owner should have the specifications prepared and the work bid in the spring, with the work scheduled to start in early summer.

10. **Nameplate:** At the completion of the cleaning and coating of the tank, the nameplate should be reattached to the new bracket.

11. **Anchor Bolts and Gussets:** After abrasive blast cleaning, the anchor bolts, gussets, and nuts should then be examined for deterioration. If deterioration is found and the anchor bolts are mild steel, the deteriorated areas of the anchor bolts should be repair welded as necessary. Grass clippings should not be allowed to accumulate around the anchor bolts.

12. **Base Cone:** The base cone access door should be locked in order to improve water system security.

13. **Painter's Rings:** It is the opinion of Tank Industry Consultants that the painter's rings should not be used for rigging purposes or personnel access.

14. **Painter's Manhole:** The missing nut on the painter's manhole should be replaced.

15. **Electrical Apparatus:** All unused antennas, cables, associated brackets, electrical conduit, fixtures, electrical metering equipment, and control cabinets should be removed from the tank and tank site. All required equipment should be repaired and maintained in accordance with the National Electric Code (NEC).

16. **Overflow Pipe:** The overflow effluent should be directed away from the tank foundation with additional rip rap or a concrete splash pad.

17. **Existing Roof Manholes:** The unplugged coupling in the side of the access tube should be plugged. The hole left by the removal of the screening on the access tube manhole vent should be eliminated. The access tube roof manhole should be locked at all times in order to improve water system security. The flanged and bolted roof manhole should be equipped with retaining chains.

18. **Clog-Resistant Vent:** The proper operation of the clog-resistant vent should be verified.

19. **Roof Plates:** The contour of the roof plates at the perimeter will need to be improved to eliminate water from ponding.

### **C. Interior Dry Surfaces**

1. **Life of the Interior Dry Coating:** The interior dry coating system appeared to be in adequate overall condition and providing adequate corrosion protection. Tank Industry Consultants believes that the interior dry surfaces should not need to be repainted within the next 1 to 2 years from a corrosion standpoint. Due to the very good adhesion of the existing interior dry coating system, spot cleaning and spot coating will be a viable option if performed before the existing coating adhesion deteriorates further. The interior dry coating system should be evaluated immediately prior to preparing specifications to determine if the coating adhesion is still adequate to accept a topcoat.

2. **Coating Testing:** Prior to preparation of specifications for the cleaning and coating of the interior dry portions of the tank, several samples of the coating system should be subjected to laboratory analysis to test for ingredients which may at that time be subject to regulations concerning their handling and disposal.

#### **3. Recommended Coating System:**

a. **Spot Clean and Spot Coat:** The condition of the interior dry surfaces may allow spot cleaning and spot coating. The typical life of a spot cleaned and spot coated system is approximately 8 to 10 years, but is highly dependent on previous surface preparation and the condition of the underlying coating system

b. **Coating Application:** If the interior dry surfaces are to be spot cleaned and spot coated, the entire interior dry surfaces of the tank should be high-pressure washed to remove chalked coating, mildew, and contaminants. After washing, the damaged and rusted areas should be spot cleaned to the equivalent of an SSPC-SP 6, Commercial Blast Cleaning, or SSPC-SP 11, Power Tool Cleaning to Bare Metal. All areas of excessive coating thickness and runs in the coating should be cleaned to the equivalent of an SSPC-SP 7, Brush-Off Blast Cleaning, to remove the excessive mils. The spot cleaned areas should receive a spot prime coat compatible with the present coating system. The spot primed areas should then be spot coated with a finish coat compatible with the present coating system.

4. **Complete Cleaning and Repainting:** If the Owner chooses to remove and replace the existing coating system, the interior dry surfaces should be cleaned to the equivalent of an SSPC-SP 6, Commercial Blast Cleaning and have a two-coat epoxy coating system applied. The typical life of a properly formulated and applied epoxy coating system is approximately 15 to 20 years or more in a dry environment. These coatings are also presently manufactured to meet current VOC requirements.

5. **Grinding and Bracket Removal:** Any unused brackets or erection lugs should be removed prior to the interior dry repainting. Any weld burrs, weld spatter, or erection scars should be ground off to provide a smooth surface for the application of the coating.

6. **Retaining Chain:** A retaining chain should be installed on the bowl ventilation manhole crab.

7. **Inlet/Outlet Pipe:** At the time of interior dry recoating, the insulation on the inlet/outlet pipe should be removed, and the condition of the pipe verified. If any areas of corrosion or damage to the pipe are noted, they should be repaired. The inlet/outlet pipe should be repainted in accordance with the interior wet coating recommendations, and the insulation should then be reinstalled.

8. **Interior Dry Ladders:** If compliance with OSHA dimensional and safety standards is desired, the support column, ventilation manhole, and access tube ladders should be replaced with ladders which meet current requirements dimensional requirements. The base cone ladder rungs modified to be slip-resistant. In addition, the safety cage is not required on ladders with safe-climbing devices. To reduce cleaning and painting costs and future maintenance costs, Tank Industry Consultants recommends that the base cone ladder safety cage be removed and a safe-climbing device installed. At the time of repainting, the access tube safe-climbing device should be cleaned and protected from the application of the coating. Adequate head clearance should be provided on all of the interior dry ladders, and the cables and conduit should be relocated away from the ladders so they do not interfere with the climber's hand clearance. The loose safe-climbing device on the access tube ladder should be tightened and the proper operation of the device verified.

9. **Interior Dry Lighting:** The lighting fixtures in the interior dry portions of the tank should be regularly maintained. Any burned out bulbs, damaged globes, or missing cages or fixtures should be replaced. The missing bulb in the base cone ladder fixture should be replaced.

10. **Lower and Top Platforms:** The access opening covers should be equipped with chains to prevent them from coming in contact with the support column and damaging the coating. At the time of the interior dry repainting, the top platform should be flooded and additional drain holes installed to adequately drain water it.

#### **D. Interior Wet Surfaces**

**Preface to Interior Recommendations:** The interior surfaces below the top capacity level could not be completely evaluated due to the Owner not being able to drain the tank. The interior surfaces were evaluated by a diver experienced in the evaluation of water storage tanks; however, an underwater evaluation is limited in scope. Therefore, the following recommendations are based on the condition of the surfaces above the top capacity level and those surfaces observed by the diver. Prior to the preparation of specifications for interior rehabilitation work, the tank should be drained, washed out and thoroughly evaluated to more accurately determine the scope of work required. A complete evaluation of the interior would also reduce the number of potential change orders, and reduce the overall amount of the bids by eliminating uncertainty about the condition of the coating and steel.

1. **Life of the Interior Wet Coating:** The interior wet coating system was in very poor overall condition as widespread corrosion was noted. Tank Industry Consultants recommends that the interior surfaces of this tank should be recoated within the next 6 months due to the extent of coating failure and corrosion noted. It is recommended that when the interior is completely cleaned and repainted, an epoxy coating system should be used.

2. **Coating Testing:** Prior to preparation of specifications for the cleaning and coating of the interior of the tank, several samples of the interior coating system should be subjected to laboratory

analysis to test for ingredients which may at that time be subject to regulations concerning their handling and disposal.

**3. Recommended Interior Wet Coating System:**

a. **Epoxy Coating System:** The optimum long-life coating system presently available for the interior of water tanks is a two-component epoxy coating system. As per the American Water standard practices, a three-coat epoxy system is recommended for the interior of this tank. This coating system should meet the certification criteria of ANSI/NSF 61 and state department of health regulations.

b. **Coating Application:** When the interior wet area is to be repainted, the entire tank interior wet areas should be cleaned to the equivalent of an SSPC-SP 10, Near-White Blast Cleaning and an epoxy coating system applied.

c. **Service Life:** The typical life of a properly formulated and applied epoxy coating system is approximately 12 to 15 years in immersion service. Tank Industry Consultants defines the life of a coating as the expected service life before repainting becomes necessary due to coating failure and corrosion. The Owner could extend the service life of the coating by installing, properly maintaining and operating a cathodic protection system to help protect the steel surfaces in areas which have experienced coating failure.

**4. Cathodic Protection:** When the tank is rehabilitated the brackets and fittings should be installed for the future installation of a cathodic protection system.

a. **Type:** When the cathodic protection system is installed, an ice-resistant cathodic protection system which features long-life anodes, automatic potential and current control.

b. **Scheduling:** After the interior is completely cleaned and recoated, the cathodic protection system should not be energized until after the First Anniversary Inspection. The Owner should conduct washouts and evaluations approximately every 3 years to monitor the need for cathodic protection. As the interior coating begins to show signs of failure, the cathodic protection system should be energized to aid in minimizing corrosion below the top capacity level.

c. **Maintenance:** Cathodic protection, if used and maintained properly, will control active corrosion below the water level and extend the useful life of a coating system. It should be noted that maintenance as recommended by the cathodic protection manufacturer is required for the cathodic protection system to work properly. Without proper monitoring, the cathodic protection system may operate too high and cause the coating to blister, or the system may operate too low and not adequately protect the exposed steel surfaces.

**5. Pit Welding and Pit Filling:** After initial cleaning, all significant pitting which is found should be welded, and all pitting with rough edges that would make the pitting difficult to coat properly should be filled with a solventless epoxy seam sealer. (It is estimated that approximately 1 gallon seam sealer will be needed for pit repair).

**6. Seam Sealing:** The existing roof manhole and existing roof vent intersections should be sealed with an epoxy seam sealer at the time of the interior recoating.

*400,000 Gallon Single Pedestal, "Fairgrounds Tank"  
Kentucky American Water, Owenton, Kentucky*

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7. **Rough Edges:** All unused brackets should be removed from the interior and exterior surfaces at the time of the next recoating. Any weld burrs, spatter, scars or rough edges in the steel should be ground smooth to provide a better surface for coating. (It was estimated that approximately 10 man-hours of grinding will be required on the interior of the tank.)

8. **Interior Container Ladder:** The interior container ladder rungs should be modified to be slip-resistant, and the loose and rusty safe-climbing device should be replaced.

9. **Shell Stiffening Rail:** **It is the opinion of Tank Industry Consultants that the shell stiffening rail should not be used for rigging purposes.**

10. **Inlet/Outlet Pipe:** The inlet/outlet pipe should be repaired or a drain pipe should be installed so that the tank can be completely drained.

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Kentucky American Water, Owenton, Kentucky*

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### ECONOMIC FACTORS:

<u>Item</u>	<u>Cost</u>	<u>Life in Years</u>
Replacement of tank with a new one	\$ 700,000 <sup>1</sup>	75+

The following is a complete list of repairs and estimated costs for their respective recommendations found in the RECOMMENDATION section of this report.

<b>Item</b>	<b>Sanitary &amp; Safety</b>	<b>Scheduled Maintenance Repairs</b>
Clean and Paint Exterior:		
SP-6, Complete Clean, Epoxy/Polyurethane System		\$ 114,000
Containment		100,000
Clean and Paint Interior Dry:		
Spot Clean and Spot Coat		30,000
Clean and Paint Interior Wet:		
SP 10, 3-Coat Epoxy System		66,000
Cathodic Protection System		8,000
Miscellaneous Chipping and Grinding		2,000
Seam Sealing		2,000
Pit Repair		1,000
Support Column, Ventilation Manhole, and Access Tube Ladders	12,000	
Remove Base Cone Ladder Safety Cage & Install Safe-Climbing Device	3,000	
Modify Container Ladder Rungs to be Slip-Resistant	2,000	
Replace Container Ladder Safe-Climbing Device	2,000	
Regrade Site	5,000	
Contingency Items	3,000	5,000

Estimates are believed to be a high average of bids that would be received in 2011.

<sup>1</sup> The replacement estimate includes costs associated with new tank fabrication and erection, foundation, painting, and engineering. The budget estimate given does not include costs associated with tank demolition, site acquisition, and distribution interruptions.

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The following economic factors include only those work items that the Engineer believes to be the minimum to properly maintain this tank from an operational standpoint. Other items related to safety and risk management should be evaluated by the Owner.

<b>Item</b>	<b>Cost</b>
<b>Clean and Paint Exterior:</b>	
SP-6, Complete Clean, Epoxy/Polyurethane System	\$114,000
Containment	100,000
<b>Clean and Paint Interior Dry:</b>	
Spot Clean and Spot Coat	30,000
<b>Clean and Paint Interior Wet:</b>	
SP 10, 3-Coat Epoxy System	60,000
Miscellaneous Chipping and Grinding	2,000
Seam Sealing	2,000
Pit Repair	1,000
Support Column, Ventilation Manhole, and Access Tube Ladders	12,000
Remove Base Cone Ladder Safety Cage & Install Safe-Climbing Device	3,000
Modify Container Ladder Rungs to be Slip-Resistant	2,000
Replace Container Ladder Safe-Climbing Device	2,000
Regrade Site	5,000
Contingency Items	5,000
<b>Total of Engineer's Recommendations</b>	<b>\$338,000</b>

Tank Industry Consultants has no control over the cost of labor, materials, or equipment, or over the contractors' methods of determining prices, or over competitive bidding, or the market conditions. Opinions of probable cost, as provided for herein, are to be made on the basis of our experience and qualifications and represent our best judgment as design professionals familiar with the design, maintenance, and construction of concrete and steel plate structures. However, Tank Industry Consultants cannot and does not guarantee that proposals, bids, or the construction cost will not vary from opinions of probable cost prepared for the Owner.

Due to the numerous potential scopes of work which exist, the Owner should obtain an updated budget estimate once the final scope of work has been determined. This would enable the Owner to accurately budget monies for additional mobilization costs and damaged coating rehabilitation costs.

Engineering and resident observation costs are not included in the Total of the Engineer's Recommendations because these fees are dependent upon the scope of work to be performed. Tank Industry Consultants performs all facets of the engineering services which would be required for this project. Estimated fees for engineering and resident observation will be furnished upon request.

## **CLOSURE:**

**Brief Summation:** Kentucky American Water has a 400,000 gallon steel single pedestal storage tank, which was in need of rehabilitation. Proper maintenance after completing the recommendations herein would include periodic washouts and evaluations approximately every 3 years.



**Contractor Selection:** The work should be performed by a competent bonded contractor, chosen from competitive bids taken on complete and concise specifications. The coatings used should be furnished by an experienced water tank coating manufacturer, supplying the field service required for application of technical coatings.

**Standards for Repairs and Coatings:** All work done and coatings applied should be applied in accordance with ANSI/NSF Standard 61, the manufacturer's recommendation, AWWA D100 and AWWA D102 (latest revisions), and the SSPC: The Society for Protective Coatings.

**Observation of Work:** Observation of the work in progress by experienced personnel will offer additional assurance of quality protective coating application. Observations can be performed on a continuous basis or spot (critical phase) basis. The actual cost of observation may be less using spot as opposed to full-time resident observation; however, with spot observation it is often necessary for work to be redone to comply with the specifications. This somewhat lowers the quality of the finished product, lengthens the job, and is frequently a cause of conflict between the contractor, Owner, and field technician. Resident full-time observation minimizes the amount of "rework" required.

**Anniversary and Maintenance Evaluations:** An anniversary evaluation should be conducted prior to the end of the one year bonded guarantee. Washouts and coating, structural, sanitary, safety, and corrosion evaluations should be conducted not less than every three years.

**Time Frame:** If the work is not performed within the next 12 months, the structure should be reevaluated prior to the preparation of specifications and solicitation of bids.

**Specifications and Bidding Documents:** The recommendations in this report are not intended to be specifications on which a contractor can bid. Complete bidding documents must include general and special conditions, detailed technical specifications, and other information necessary for the competitive bidding process. To properly protect the interests of the Owner, Contractor, and Engineer; the initial evaluation, the technical specifications, legal portions of the contract documents, and the observation should be performed by the same firm or with close coordination of all parties involved.

**Limitations of Evaluation:** It is believed that the conditions reported herein reflect the condition of the tank as observed on the date of the evaluation, using reasonable care in making the observations, and safety in gaining access to the tank. Should latent defects be discovered during the cleaning of the structure, they should be brought to the attention of the Owner and the Engineer.

**Seismic and Wind Loadings:** This tank is located in a region of low seismic activity. This evaluation and the reporting of the condition of this tank do not warrant the structural condition of the tank or any of the original design for seismic loadings. Likewise, recommendations for this tank do not include modifications that may be required for compliance with present structural codes. It is possible the tank was erected in compliance with pre-existing industry standards which have since been replaced by more restrictive standards.

**Hazardous Materials in Coatings:** It should be taken into consideration that Federal, State, and local environmental agencies have placed stricter controls on the removal of lead-based and other heavy-metal based coatings from steel structures by the use of conventional abrasive blasting techniques. The

*400,000 Gallon Single Pedestal, "Fairgrounds Tank"  
Kentucky American Water, Owenton, Kentucky*

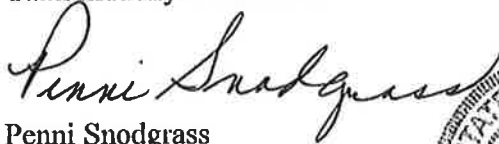
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paint and blast residue may be considered to be hazardous waste depending on the concentration of lead or other particles in residue.

Please contact Tank Industry Consultants if you have any questions or comments.

Respectfully submitted,

Tank Industry Consultants



Penni Snodgrass  
Technical Editor



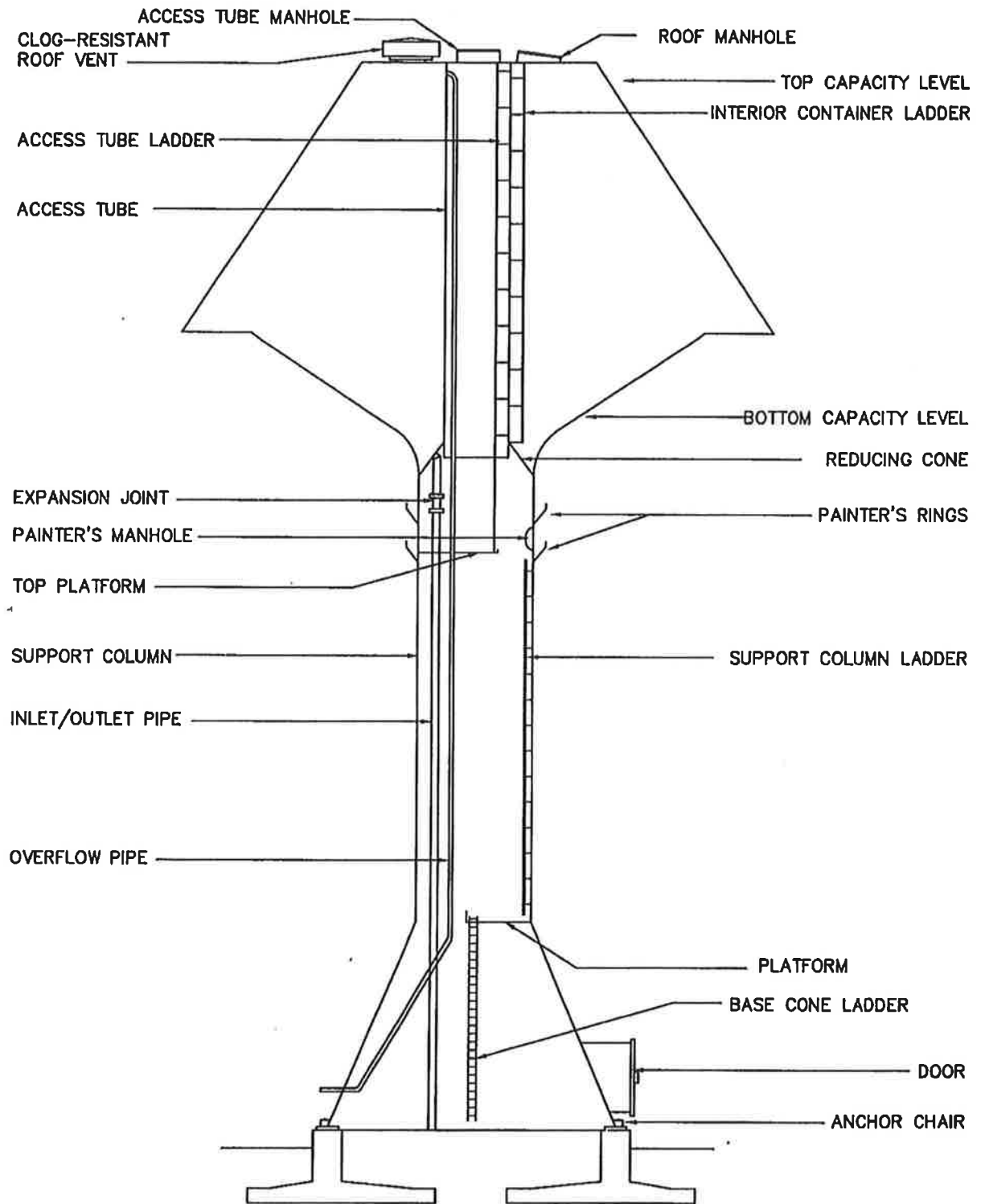
Gregory R. "Chip" Stein, P.E.  
Managing Principal









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# SINGLE PEDESTAL TANK

## NOMENCLATURE



## Classification of Adhesion Test Results

Method A – X Cut Tape Test Approx. 1.5 in. long cuts at 30 deg. to 45 deg. apart.	Surface	Classification
No peeling or removal.		5
Trace peeling or removal along incisions.		4
Jagged removal along incisions up to 1/16 in. (1.6mm) on either side.		3
Jagged removal along most of incisions up to 1/8 in. (3.2mm) on either side.		2
Removal from most of the area of the X under the tape.		1
Removal beyond the area of the X.		0

Method B – Lattice Cut Tape Test Six parallel cuts at 2mm apart.	Surface	Classification
The edges of the cuts are completely smooth; none of the squares of the lattice are detached.	No Failure	5
Small flakes of the coating are detached at intersections; less than 5% of the lattice is affected.		4
Small flakes of the coating are detached along edges and at intersections of cuts. The area affected is 5% to 15% of the lattice.		3
The coating has flaked along the edges and on parts of the squares. The area affected is 15% to 35% of the lattice.		2
The coating has flaked along the edges of cuts in large ribbons and whole squares have detached. The area affected is 35% to 65% of the lattice.		1
Flaking and detachment worse than grade 1.		0

## Tank Industry Consultants

7740 West New York Street  
Indianapolis, Indiana 46214

Telephone – 317/271-3100  
FAX – 317/271-3300



Our Lab # 11007223-003

Your Sample ID: Internal Dry

Your Project # 11.035-H310.012

Collection Date: 06/09/11

Your Project Name: Paint Samples

Collected By: Client

Sample Type: Paint Chips

Receipt Date: 06/14/11 13:00

## Total Metals, ICP-AES

Parameter	<u>Analytical Method</u>		<u>Prep Method</u>		<u>Prep Date</u>	<u>By</u>
	Result	Units	Qual	Limit	CAS #	Analysis Date By
Cadmium, Cd	< 25.0	mg/kg		25.0	7440-43-9	6/16/2011 kfoltz
Chromium, Cr	< 250	mg/kg		250	7440-47-3	6/16/2011 kfoltz
Lead, Pb	< 250	mg/kg		250	7439-92-1	6/16/2011 kfoltz



6/16/2011

Lab Manager

Date

Lab # 11007223-003

Sample ID: Internal Dry

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**ESG Laboratories**

 5927 WEST 71ST STREET  
 INDIANAPOLIS, INDIANA 46278

 PHONE (317) 290-1471  
 FAX (317) 290-1670



400,000 Gallon Single  
Pedestal,  
"Fairgrounds Tank"

Kentucky American  
Water,  
Owenton, Kentucky

1. Tank and site.



2. Tank and site.



3. Surrounding area.



4. Surrounding area.





5. Surrounding area.



6. Surrounding area.



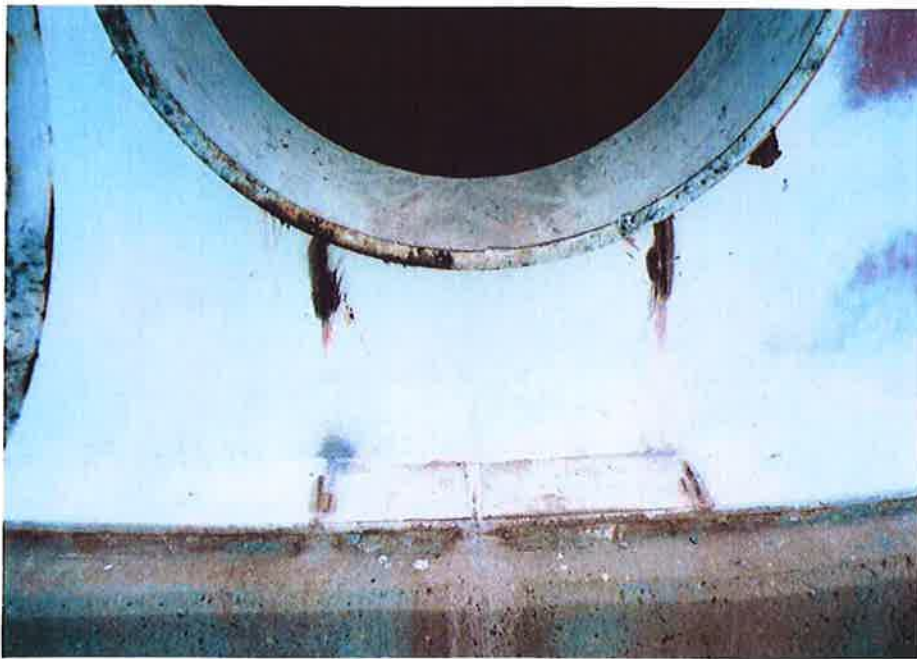
7. Site.



8. Tank foundation, grout, base plate, and anchor bolt and gussets.

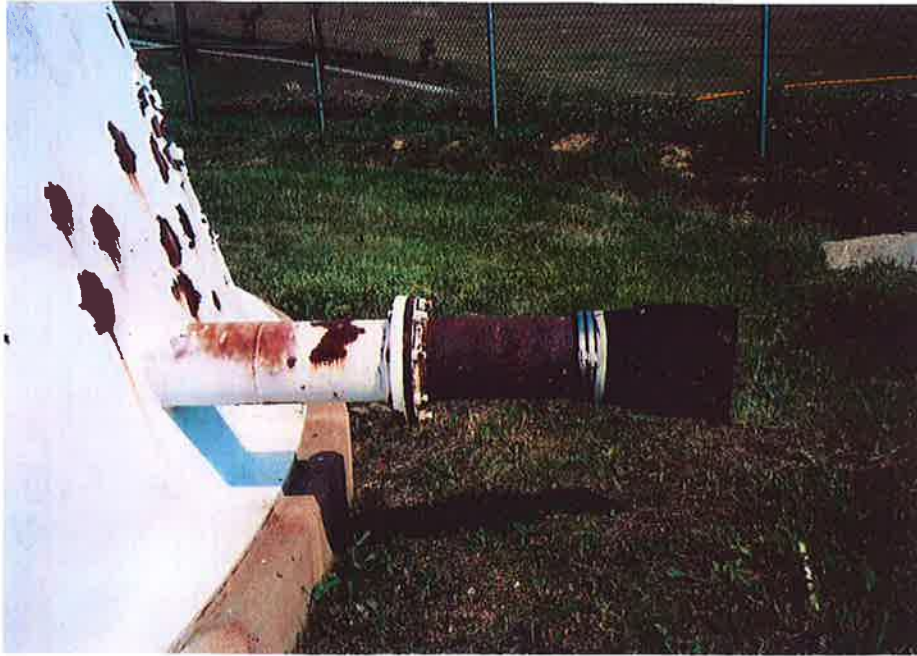


9. Tank foundation, grout, and base plate. Note deteriorated concrete and vegetation near foundation.



10. Erection welds under base cone access door.





11. Overflow pipe projection from the base cone and elastomeric check valve.



12. Topcoat failure and corrosion on base cone and support column.



13. Topcoat failure and corrosion on base cone and support column.



14. Spots of corrosion on support column. Note painter's rings and painter's manhole.



15. Painter's rings and underside of bowl.

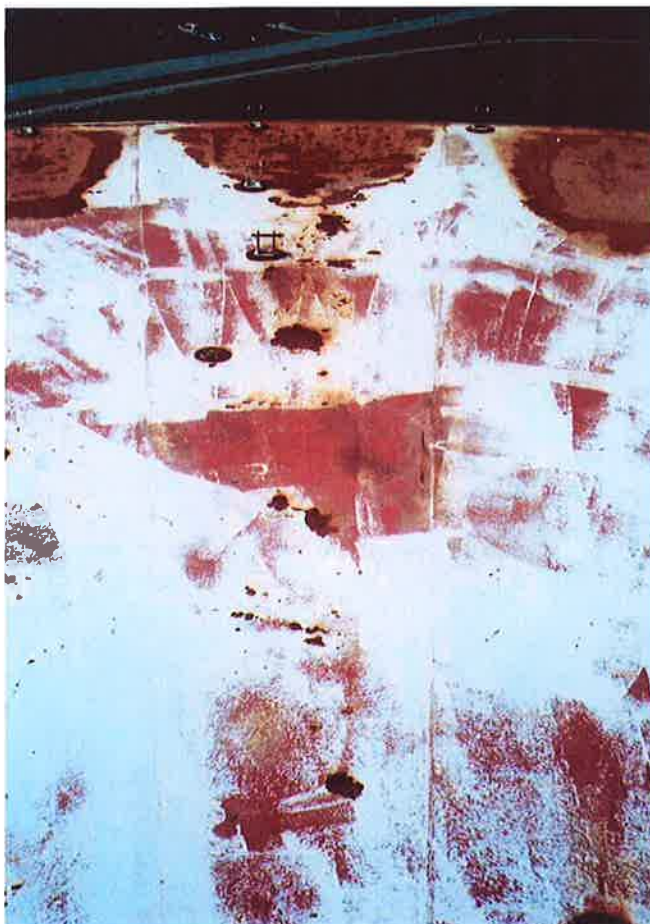


16. Access rungs to painter's rings.





17. Coating failure and corrosion on the bowl.



18. Corrosion, topcoat failure, and areas of accumulated water on the roof. Note containment outrigger lugs on roof.

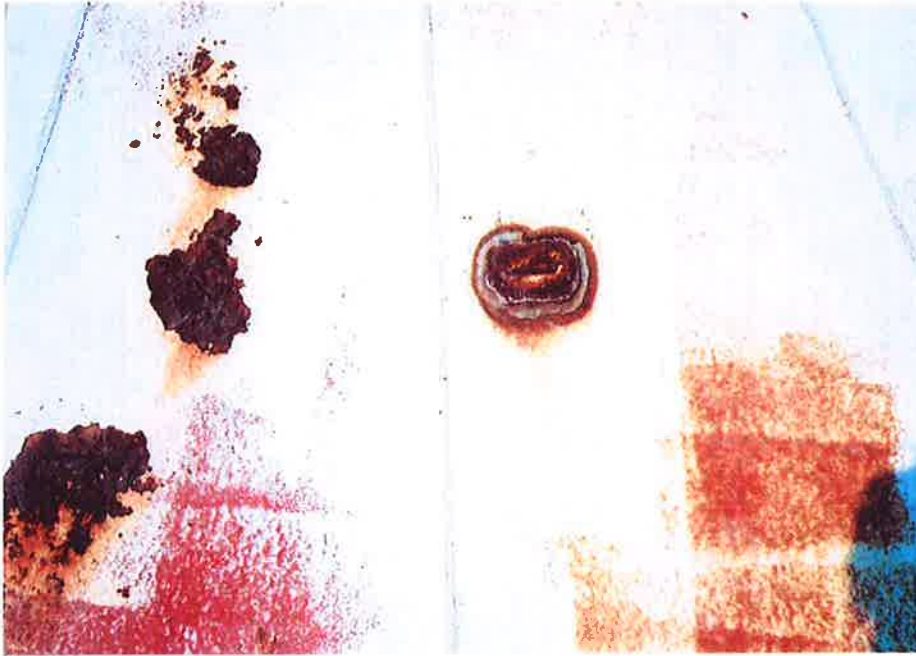


19. Corrosion, topcoat failure, and areas of accumulated water on the roof. Note containment outrigger lugs on roof.



20. Corrosion, topcoat failure, and plugged coupling on the roof.





21. Corrosion and patch plate on the roof.



22. Corrosion on roof manhole cover.



23. Roof manhole and interior container ladder.



24. Antenna on roof.  
Note cables penetrate access tube manhole cover.



25. Access tube manhole and cover.



26. Roof vent. Note outrigger lugs on roof.





27. Flanged and bolted roof manhole.



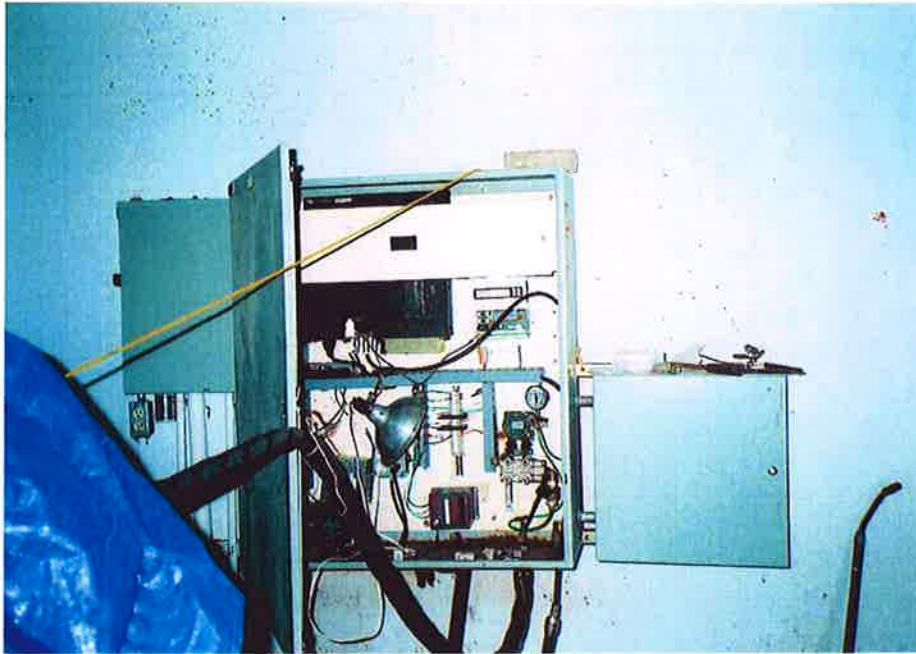
28. Base cone access and door.



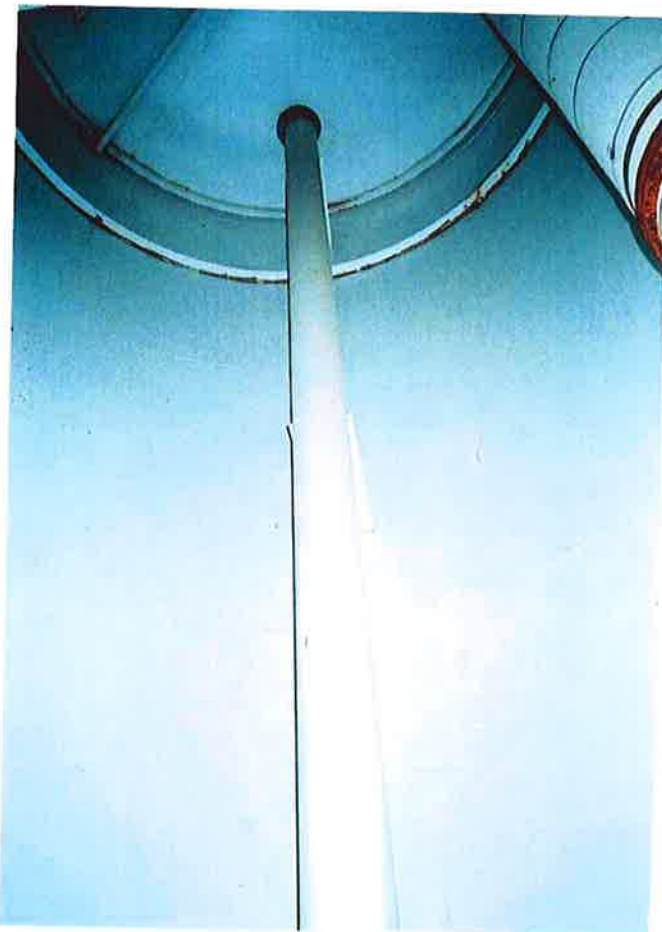
29. New nameplate bracket on interior of base cone access door.



30. Corrosion on the interior base plate projection.



31. Cabinet in base cone.



32. Overflow pipe.

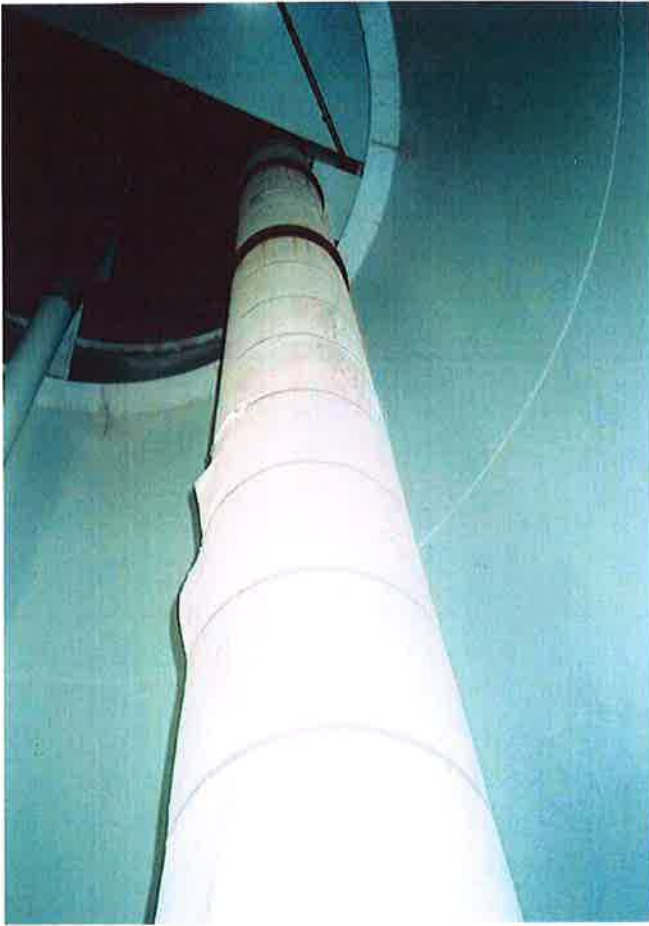




33. Base cone ladder and safety cage. Note conduits and cables.



34. Inlet/outlet pipe, dry platforms, and overflow pipe.

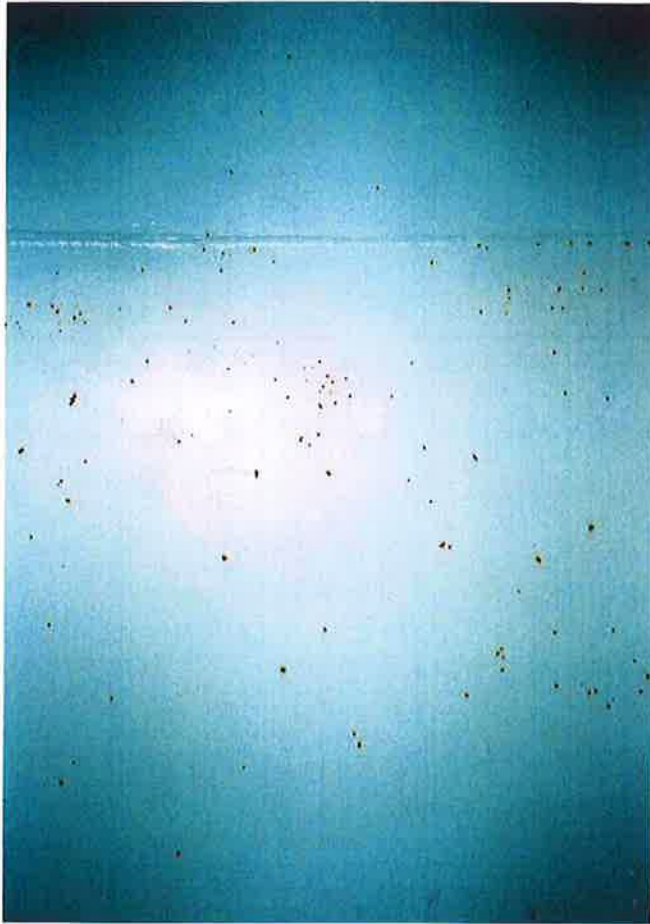


35. Inlet/outlet pipe and insulation.



36. Overflow pipe and brackets.





37. Coating failure on interior dry.



38. Base cone ladder access through bottom platform. Note new, unpainted curb and manhole cover.



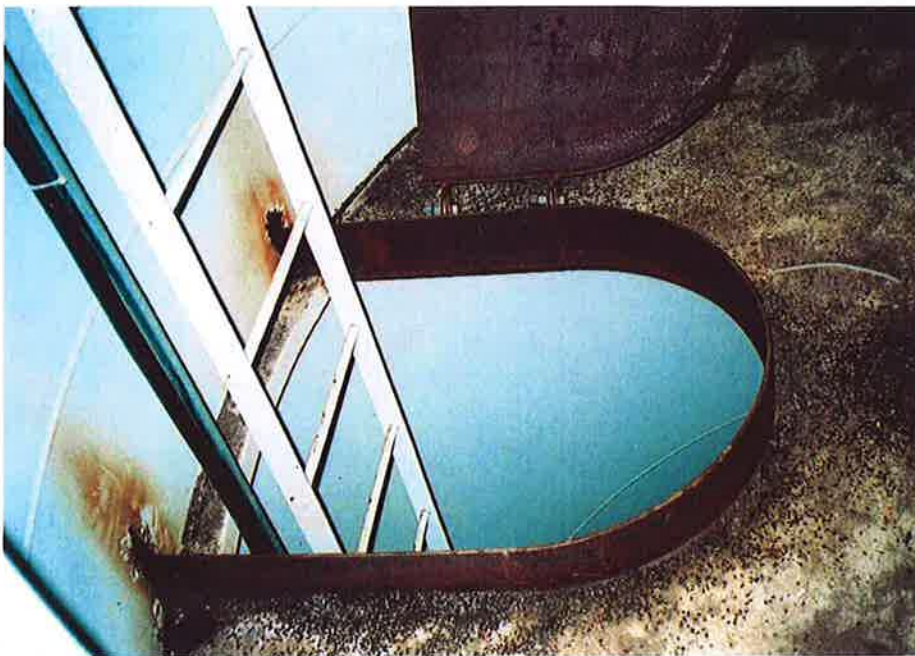
39. Top of the base cone ladder.



40. Base cone ladder, inlet/outlet pipe, and bottom platform.

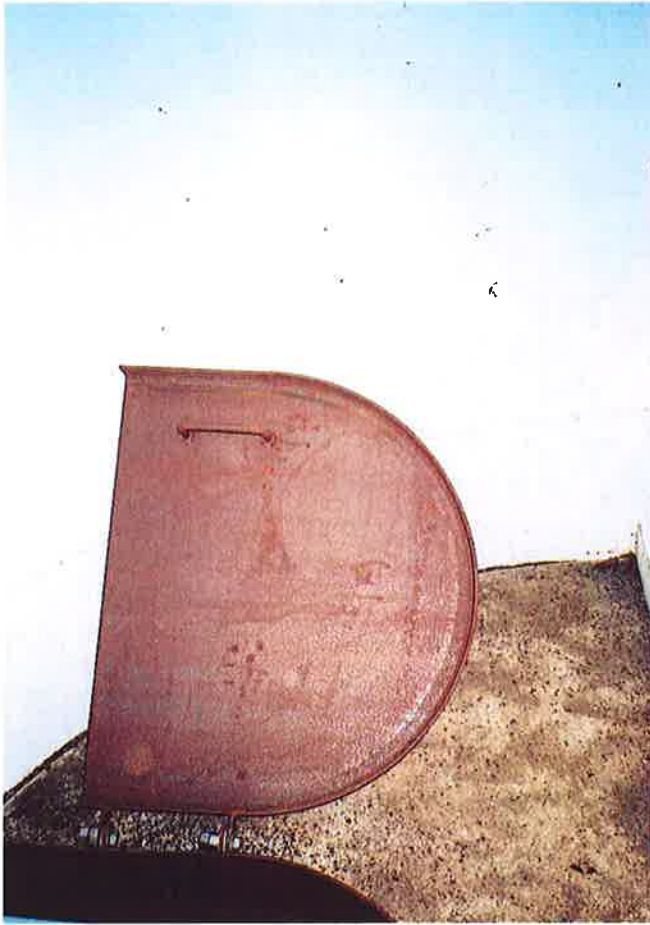


41. Platform and support column ladder section. Note new, unpainted curb and manhole cover.

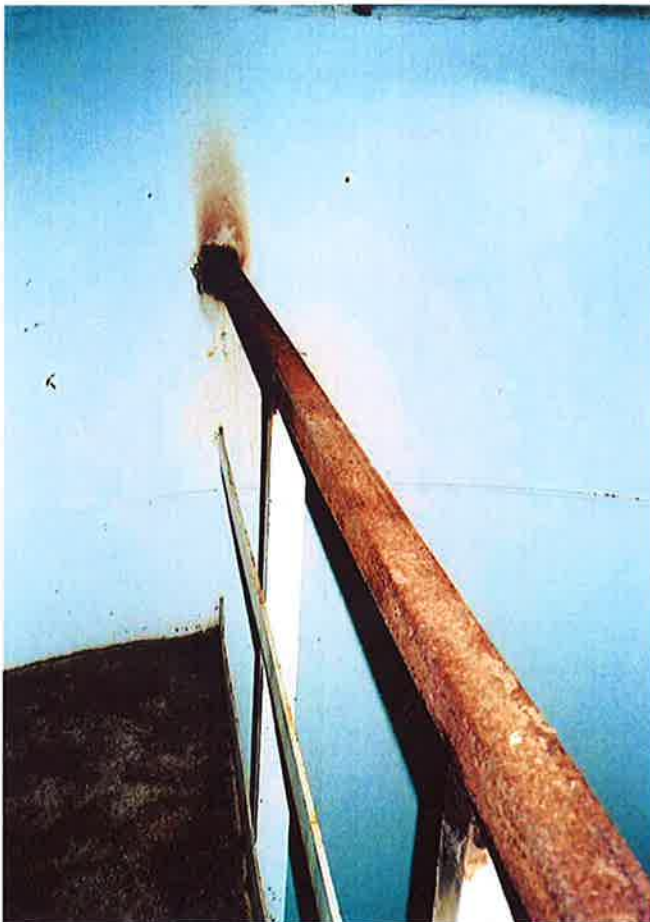


42. Access through a platform and support column ladder section. Note conduit and cables.





43. New, unpainted access manhole cover.



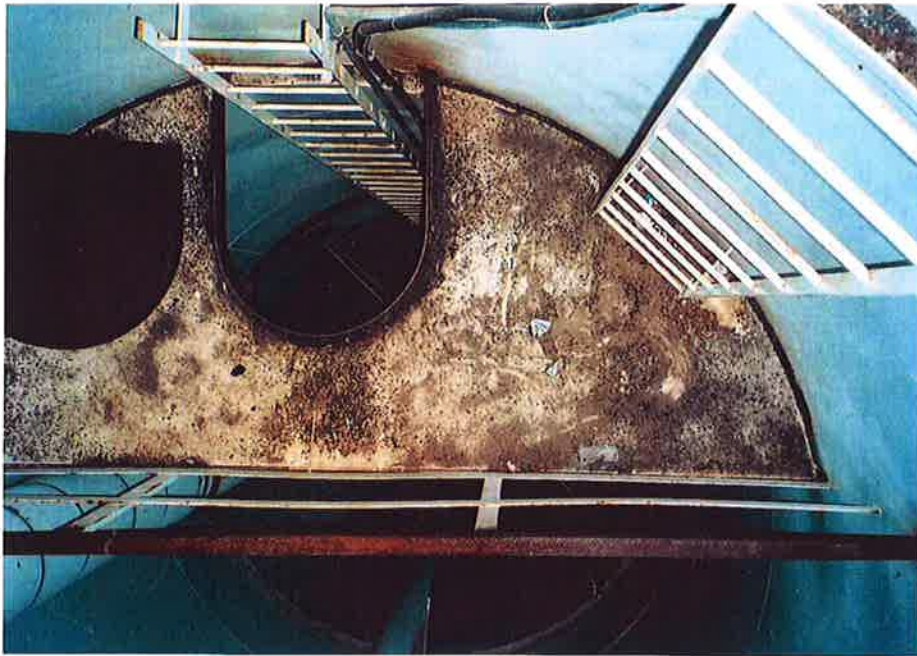
44. New, unpainted safety railing handrail



- 45. Coating failure on platform opening where new curb welded.



- 46. Welded connection on support column ladder.

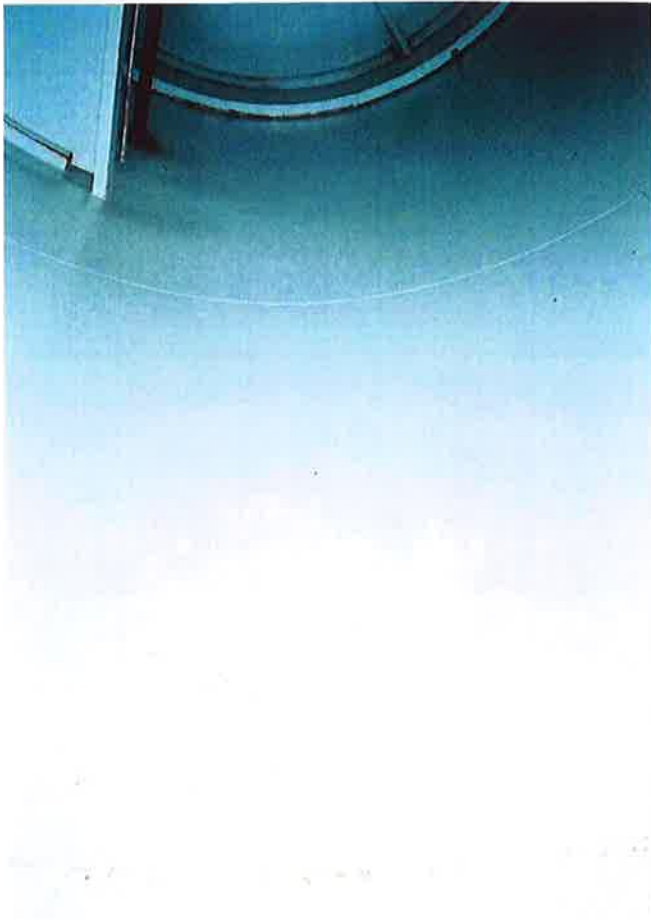


47. Platform and support column ladder sections. Note new, unpainted curb, cover, and safety railing handrail.



48. New, unpainted safety railing handrail.

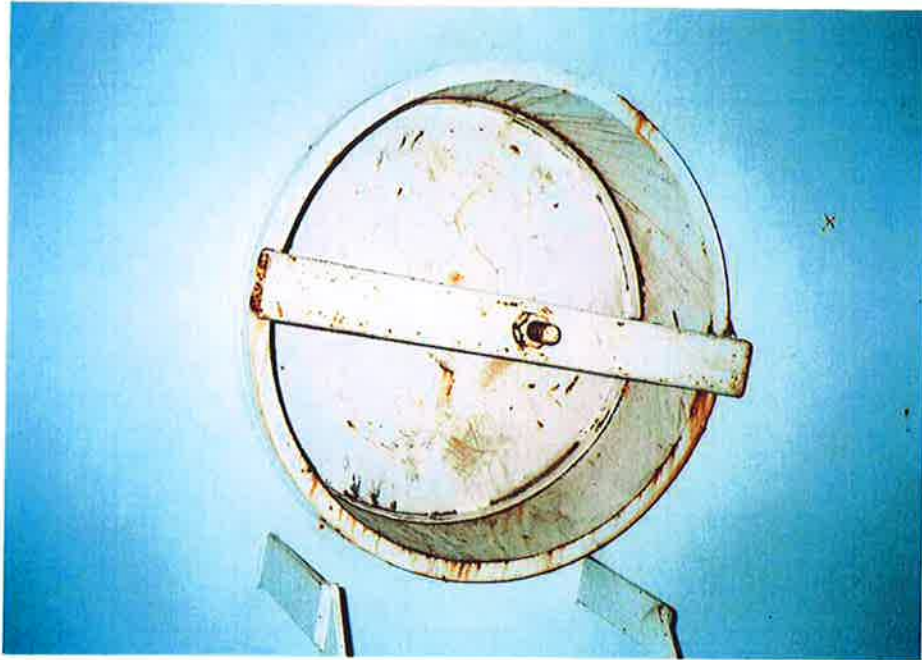




49. Coating on interior dry.



50. Ventilation manhole ladder.



51. Ventilation manhole.



52. Intermittently welded stiffener on interior dry.

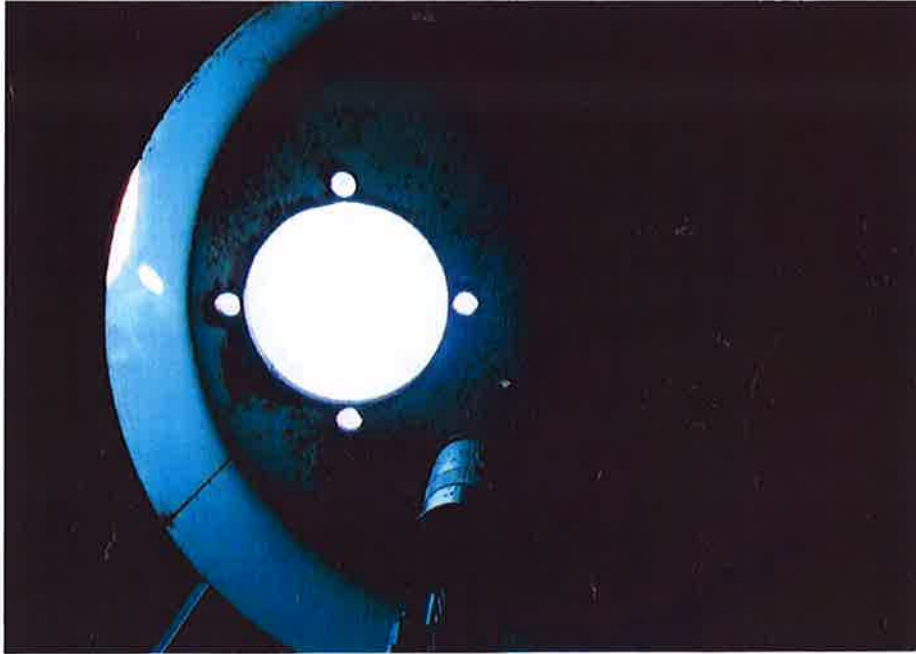




53. Cable and dry bowl.



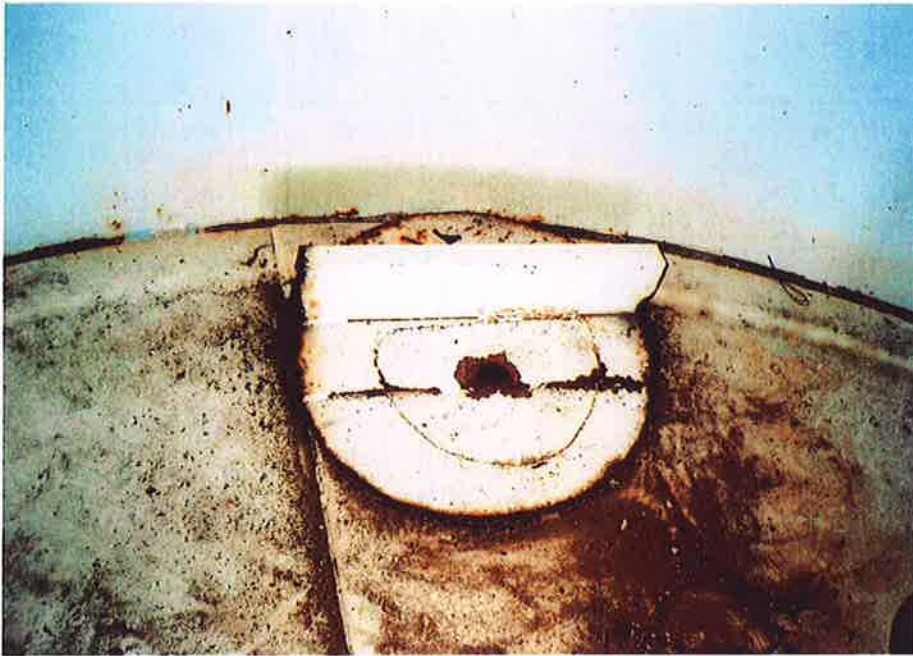
54. Hole cut in stiffening angle.



55. Holes cut in platform.



56. Platform access.



57. Cover on hole in platform.



58. Support column ladder, safe-climbing device and platform. Note cables.





59. Access tube ladder and safe-climbing device. Note conduits.



60. Spots of corrosion on access tube.



61. Container ladder and safe-climbing device.



62. Roof support structure.



63. Corrosion on the roof support structure.



64. Corrosion on the roof support structure.



65. Coating failure and rust staining on tank interior.

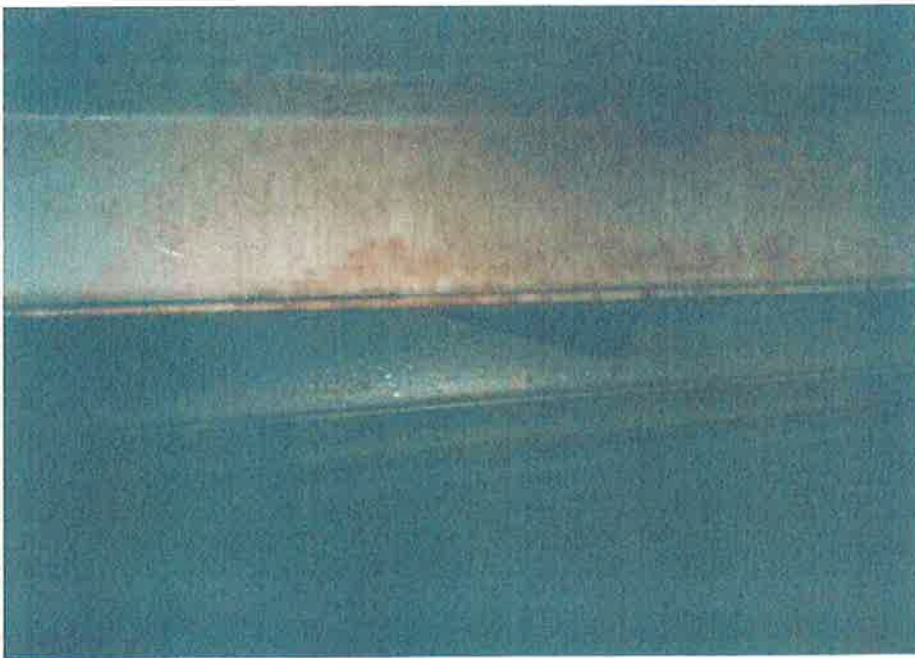


66. Coating failure on roof support structure.





67. Roof support structure connection to access tube.



68. Roof support structure.





69. Overflow weir box.



70. Roof support structure and coating failure on shell.



71. Overflow bracket attachment to access tube on tank interior.



72. Overflow bracket attachment to access tube on tank interior.



73. Container ladder and overflow pipe and bracket.



74. Container ladder.

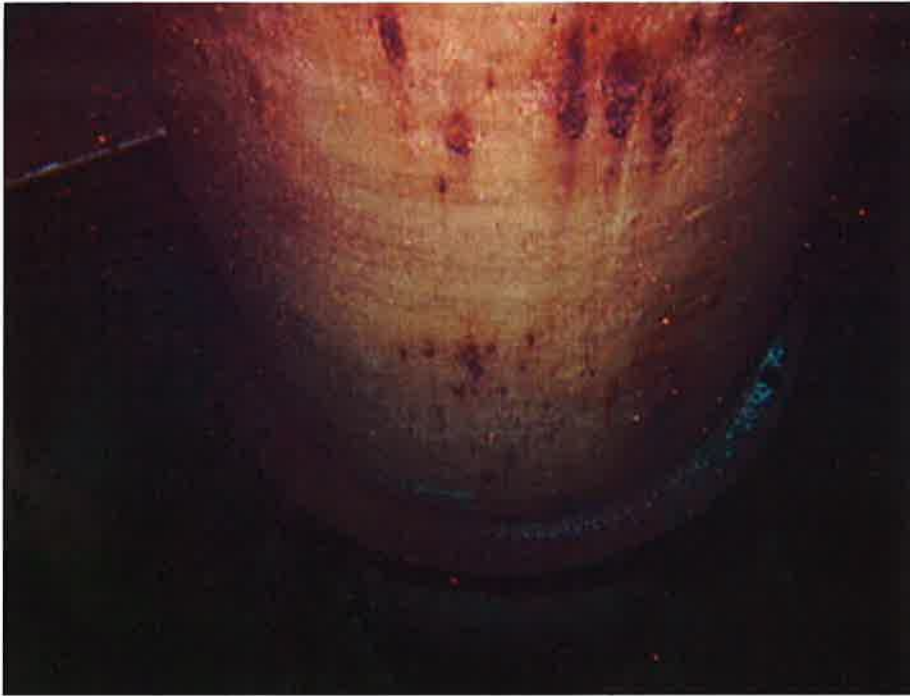


75. Container ladder base and pipe penetration in bowl of tank.

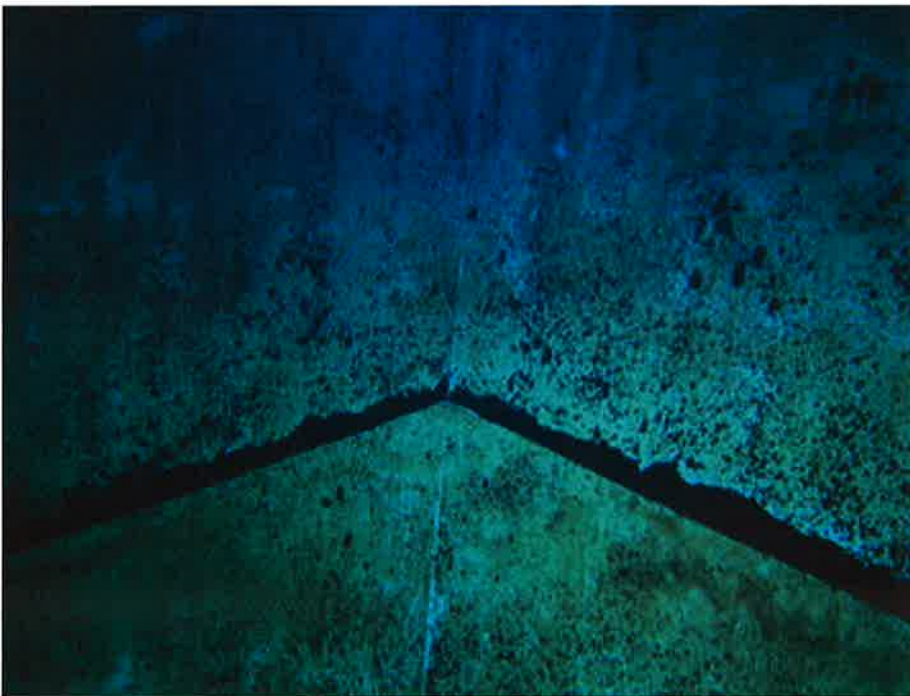


76. Container ladder base and pipe penetration in bowl of tank.





77. Pipe penetration in bowl of tank.



78. Shell interior.



79. Corrosion on the bowl.



80. Corrosion on the bowl.



81. Manhole and cover in bowl.

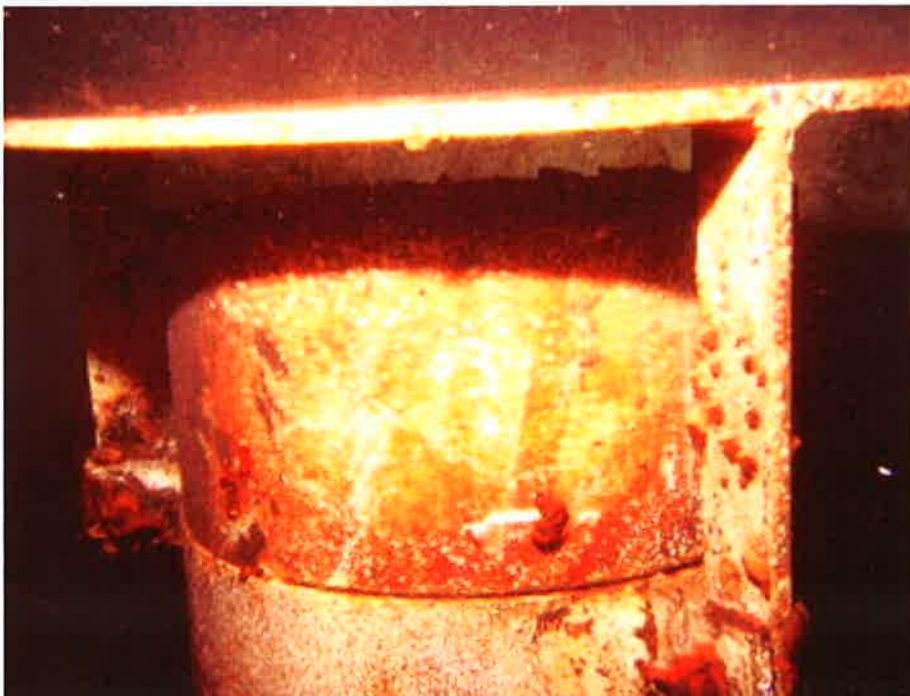


82. Manhole and cover in bowl.





83. Inlet/outlet pipe cover.



84. Inlet/outlet pipe cover.

**CONTRACT DOCUMENTS AND SPECIFICATIONS**

for

**Repairing and Repainting the Interior Wet, Interior Dry, and Exterior of**

**One 400,000 Gallon Steel Elevated Tank**

**"Fairgrounds Tank"**

**Owenton, Kentucky**

*m.p.  
PATRICK ✓  
FILE COPY ✓*

for

**KENTUCKY AMERICAN WATER**

**Lexington, Kentucky**

Prepared by

**Tank Industry Consultants**

Headquarters:

**7740 West New York Street  
Indianapolis, Indiana 46214**

**TIC 06.219.H310.12**

**October 11, 2006**

**CHANGE ORDER**

Distribution to: OWNER X  
ENGINEER X  
CONTRACTOR X  
FIELD X  
OTHER \_\_\_\_\_

PROJECT: "Fairgrounds Tank"  
Owenton, Kentucky

CHANGE ORDER NUMBER: 1

INITIATION DATE: 6-8-07

TO: George Kountoupes Painting Company Co.  
661 Southfield Road  
Lincoln Park, Michigan 48146

ENGINEER'S PROJECT NO: 06.219.H310.12

You are directed to make the following changes in the Contract Documents:

Additional insurance coverage to change project time from spring to fall	\$4,800.00
--	------------

**No other work is changed by this Change Order. All materials shall be as specified and approved.**

Not valid until signed by both the Owner and Engineer.

Signature of the Contractor indicates his/her agreement herewith, including any adjustment in the Contract Sum or Contract Time.

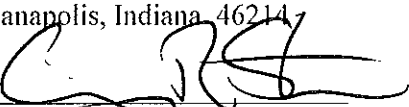
The original Contract Sum was.....	\$281,400.00
Net change by previously authorized Change Orders.....	\$0
The Contract Sum prior to this Change Order was.....	\$281,400.00
The Contract Sum will be increased by this Change Order.....	\$4,800.00
The new Contract Sum including this Change Order will be .....	\$286,200.00

**Authorization:**

**RECOMMENDED by Engineer:**

Tank Industry Consultants

7740 West New York Street  
Indianapolis, Indiana 46214


By:   
ENGINEER (Authorized Signature)

Date: 6-21-07

**APPROVED by Owner:**

Kentucky American Water

2300 Richmond Road  
Lexington, Kentucky 40502

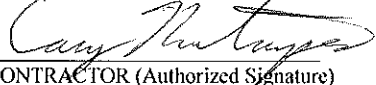
By:   
OWNER (Authorized Signature)

Date: 6-27-07

**ACCEPTED by Contractor:**

George Kountoupes Painting  
Company Co

661 Southfield Road  
Lincoln Park, Michigan 48146

By:   
CONTRACTOR (Authorized Signature)

Date: 6/18/07

00530-1



102 Kercheval, Grosse Pointe Farms, Michigan 48236

BOND NO. 10034878

**PAYMENT BOND**

(State of Michigan Statutory Form, Act No. 213 of Public Acts, 1963, As Amended)

KNOW ALL MEN BY THESE PRESENTS, That we, George Kountoupes Painting Company

as Principal, and The Guarantee Company of North America, USA, a Michigan Corporation, as Surety, are held and firmly bound in the sum of Two Hundred Eighty One Thousand Four Hundred

and 00/100----- (\$ 281,400.00 ) Dollars for which sum, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, by these presents.

WHEREAS, on the 2<sup>nd</sup> day of February, 2006, the Principal entered into a contract with the Kentucky American Water Company

for which contract is by reference made a part hereof and is hereafter referred to as the Contract.

AND WHEREAS, this bond is given in compliance with and subject to the provisions of Act No. 213 of the Public Acts of Michigan, 1963 as amended, hereafter referred to as the Act.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, That, this bond is for the benefit of Claimants, as defined in the Act, and if the Principal shall pay for Labor and Material, as defined in the Act, then this shall be void, otherwise remain in full force and effect.

SEALED WITH OUR SEALS and DATED this \_\_\_\_\_ day of \_\_\_\_\_, 2006

George Kountoupes Painting Company

BY:

George Kountoupes  
Principal

The Guarantee Company of North America USA

BY:

Maria J. Griffin  
Maria J. Griffin, Attorney-In-Fact



102 Kercheval, Grosse Pointe Farms, Michigan 48236

BOND NO. 10034878

PERFORMANCE BOND

(State of Michigan Statutory Form, Act No. 213 of Public Acts, 1963, As Amended)

KNOW ALL MEN BY THESE PRESENTS, That we, George Kountoupes Painting Company

as Principal, and The Guarantee Company of North America USA, a Michigan Corporation, as Surety, are held and firmly bound unto Kentucky American Water Company

as Obligee, in the sum of Two Hundred Eighty One Thousand Four Hundred Dollars and 00/100

(\$ 281,400.00 )

Dollars for which sum, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, by these presents.

WHEREAS, on the 2nd day of February, 2006, the Principal entered into a contract with the Obligee for Repairing & Repainting of the Interior Wet, Interior Dry, and Exterior of One 400,000 Gallon Steel Elevated Tank "Fairgrounds Tank"  
"Owenton, KY"

which contract is by reference made a part hereof and is hereafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, That, if the Principal shall faithfully perform said Contract in accordance with the plans, specifications and terms thereof, then this obligation shall be void; otherwise, it shall remain in full force and effect.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 2006.

George Kountoupes Painting Company

BY:

George Kountoupes  
Principal

The Guarantee Company of North America USA

BY:

Maria J. Griffin  
Maria J. Griffin, Attorney-In-Fact



THE GUARANTEE COMPANY OF NORTH AMERICA USA

Southfield, Michigan

POWER OF ATTORNEY

KNOW ALL BY THESE PRESENTS: That THE GUARANTEE COMPANY OF NORTH AMERICA USA, a corporation organized and existing under the laws of the State of Michigan, having its principal office in Southfield, Michigan, does hereby constitute and appoint

John E. Zervos, Angelo J. Zervos, Daniel S. Griffin, Maria J. Griffin
Zervos Agency, Inc.

its true and lawful attorney(s)-in-fact to execute, seal and deliver for and on its behalf as surety, any and all bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof, which are or may be allowed, required or permitted by law, statute, rule, regulation, contract or otherwise.

The execution of such instrument(s) in pursuance of these presents, shall be as binding upon THE GUARANTEE COMPANY OF NORTH AMERICA USA as fully and amply, to all intents and purposes, as if the same had been duly executed and acknowledged by its regularly elected officers at the principal office.

The Power of Attorney is executed and may be certified so, and may be revoked, pursuant to and by authority of Article IX, Section 9.03 of the By-Laws adopted by the Board of Directors of THE GUARANTEE COMPANY OF NORTH AMERICA USA at a meeting held on the 31st day of December, 2003. The President, or any Vice President, acting with any Secretary or Assistant Secretary, shall have power and authority:

- 1. To appoint Attorney(s)-in-fact, and to authorize them to execute on behalf of the Company, and attach the Seal of the Company thereto, bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof; and
2. To revoke, at any time, any such Attorney-in-fact and revoke the authority given.

Further, this Power of Attorney is signed and sealed by facsimile pursuant to resolution of the Board of Directors of the Company adopted at a meeting duly called and held on the 31st day of December 2003, of which the following is a true excerpt:

RESOLVED that the signature of any authorized officer and the seal of the Company may be affixed by facsimile to any Power of Attorney or certification thereof authorizing the execution and delivery of any bond, undertaking, contracts of indemnity and other writings obligatory in the nature thereof, and such signature and seal when so used shall have the same force and effect as though manually affixed.

IN WITNESS WHEREOF, THE GUARANTEE COMPANY OF NORTH AMERICA USA has caused this instrument to be signed and its corporate seal to be affixed by its authorized officer, this 15th day of December, 2005.

THE GUARANTEE COMPANY OF NORTH AMERICA USA



STATE OF MICHIGAN
County of Oakland

[Handwritten signature of Stephen Dullard]

Stephen Dullard, Vice President

On this 15th day of December, 2005 before me came the individual who executed the preceding instrument, to me personally known, and being by me duly sworn, said that he is the herein described and authorized officer of The Guarantee Company of North America USA; that the seal affixed to said instrument is the Corporate Seal of said Company; that the Corporate Seal and his signature were duly affixed by order of the Board of Directors of said Company.



Cynthia A. Takai
Notary Public, State of Michigan
County of Oakland
My Commission Expires February 26, 2006
Acting in Oakland County

IN WITNESS WHEREOF, I have hereunto set my hand at The Guarantee Company of North America USA offices the day and year above written.

[Handwritten signature of Cynthia A. Takai]

I, Randall Musselman, Secretary of THE GUARANTEE COMPANY OF NORTH AMERICA USA, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney executed by THE GUARANTEE COMPANY OF NORTH AMERICA USA, which is still in full force and effect.

IN WITNESS WHEREOF, I have thereunto set my hand and attached the seal of said Company this 20 day of 2006



[Handwritten signature of Randall Musselman]

Randall Musselman, Secretary

<b>ACORD™ CERTIFICATE OF LIABILITY INSURANCE</b>		DATE (MM/DD/YYYY) 12/13/06
PRODUCER Ryan D Kyes 815 W Main St Lowell, MI 49331 616-897-2945	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.	
INSURED George Kountoupes Painting Co. 661 Southfield Rd Lincoln Park, MI 48146	INSURERS AFFORDING COVERAGE	NAIC #
	INSURER A: Allstate Insurance	
	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	

**COVERAGES**

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR	ADDL	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
		GENERAL LIABILITY <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC				EACH OCCURRENCE \$ DAMAGE TO RENTED PREMISES (Ea occurrence) \$ MED EXP (Any one person) \$ PERSONAL & ADV INJURY \$ GENERAL AGGREGATE \$ PRODUCTS - COMP/OP AGG \$
		AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS	048800790	10/20/2006	10/20/2007	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
		GARAGE LIABILITY <input type="checkbox"/> ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN AUTO ONLY: EA ACC \$ AGG \$
		EXCESS/UMBRELLA LIABILITY <input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE DEDUCTIBLE RETENTION				EACH OCCURRENCE \$ AGGREGATE \$ \$ \$ \$
		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below				WC STATU-TORY LIMITS OTH-ER E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$
		OTHER				

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS**

Project Location: Owenton KY  
 Description: Repairing and Repainting the interior wet, interior dry and exterior of (1) 400,000-Gallon Steel elevated Tank "Fairgrounds Tank"  
 Additional Insured: Kentucky American Water and their officers, agents and employees, Tank Industry Consultants and their officers, agents and employees.

<b>CERTIFICATE HOLDER</b> Kentucky American Water 2300 Richmond Road Lexington, KY 40502	<b>CANCELLATION</b> SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL <u>30</u> DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES. AUTHORIZED REPRESENTATIVE <i>Ryan Kyes</i>
---	---





Print Key Output

5722SS1 V5R3M0 040528

A4000033

12/14/06 Page 1  
11:56:35

Display Device . . . . . : QPADEV006F  
User . . . . . : S305153

Insured: GEORGE KOUNTOUPES  
Home: ( 313 ) 388 - 9400

Pol. No.: 048800790  
Business: ( 313 ) 388 - 9400

\*\* WAIVER OF SUBROGATION \*\*  
Party No. 1

Name and Address of Designated Party

Name : KENTUCKY AMERICAN WATER      Address : 2300 RICHMOND ROAD  
City : LEXINGTON                              State : KY      Zipcode : 40502

Location of Project

Address : 2300 RICHMOND ROAD  
City : LEXINGTON                              State : KY      Zipcode : 40502

Contract Number:

Description Of Project: REPAIRING AND REPAINTING

(ENTER) CONTINUE      (F1) HELP   (F3) QUIT   (F4) BACK SCREEN   (F6) PEND  
AMSG3689I Enter a Contract Number.

# ACORD CERTIFICATE OF LIABILITY INSURANCE

Page 75 of 332  
 OP ID EZ GEORG-2  
 DATE (MM/DD/YYYY) 03/01/2007


<b>PRODUCER</b>  Zervos Agency, Inc. 24724 Farmbrook Rd. Southfield MI 48034 Phone: 248-355-4400 Fax: 248-355-1738	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.												
<b>INSURED</b>  George Kountoupes Ptg Co* Cary Kountoupes 661 Southfield Road Lincoln Park MI 48146	<table border="1"> <tr> <th>INSURERS AFFORDING COVERAGE</th> <th>NAIC #</th> </tr> <tr> <td>INSURER A: Lincoln General Ins. Co.</td> <td></td> </tr> <tr> <td>INSURER B: American Home Assur. Co.</td> <td></td> </tr> <tr> <td>INSURER C: Granite State</td> <td></td> </tr> <tr> <td>INSURER D: Fireman's Fund McGee</td> <td></td> </tr> <tr> <td>INSURER E:</td> <td></td> </tr> </table>	INSURERS AFFORDING COVERAGE	NAIC #	INSURER A: Lincoln General Ins. Co.		INSURER B: American Home Assur. Co.		INSURER C: Granite State		INSURER D: Fireman's Fund McGee		INSURER E:	
INSURERS AFFORDING COVERAGE	NAIC #												
INSURER A: Lincoln General Ins. Co.													
INSURER B: American Home Assur. Co.													
INSURER C: Granite State													
INSURER D: Fireman's Fund McGee													
INSURER E:													

## COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR ADD'L LTR INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS							
A	<input checked="" type="checkbox"/> GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> XCU <input checked="" type="checkbox"/> _____ GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC	FLL100038-00	04/01/06	04/01/07	EACH OCCURRENCE \$ 1000000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 50000 MED EXP (Any one person) \$ 5000 PERSONAL & ADV INJURY \$ 1000000 GENERAL AGGREGATE \$ 2000000 PRODUCTS - COMP/OP AGG \$ 2000000							
	<input type="checkbox"/> AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS				COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$							
	<input type="checkbox"/> GARAGE LIABILITY <input type="checkbox"/> ANY AUTO				AUTO ONLY - EA ACCIDENT \$ OTHER THAN EA ACC \$ AUTO ONLY: AGG \$							
B	<input checked="" type="checkbox"/> EXCESS/UMBRELLA LIABILITY <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> DEDUCTIBLE <input checked="" type="checkbox"/> RETENTION \$ 10000	BE9306196	04/01/06	04/01/07	EACH OCCURRENCE \$ 9000000 AGGREGATE \$ 9000000 \$ \$ \$							
	<input type="checkbox"/> WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? If yes, describe under SPECIAL PROVISIONS below <input type="checkbox"/> OTHER	WC3421843	04/01/06	04/01/07	<table border="1"> <tr> <td>WC STATU-TORY LIMITS</td> <td>OTH-ER</td> </tr> <tr> <td>E.L. EACH ACCIDENT</td> <td>\$ 500000</td> </tr> <tr> <td>E.L. DISEASE - EA EMPLOYEE</td> <td>\$ 500000</td> </tr> <tr> <td>E.L. DISEASE - POLICY LIMIT</td> <td>\$ 500000</td> </tr> </table>	WC STATU-TORY LIMITS	OTH-ER	E.L. EACH ACCIDENT	\$ 500000	E.L. DISEASE - EA EMPLOYEE	\$ 500000	E.L. DISEASE - POLICY LIMIT
WC STATU-TORY LIMITS	OTH-ER											
E.L. EACH ACCIDENT	\$ 500000											
E.L. DISEASE - EA EMPLOYEE	\$ 500000											
E.L. DISEASE - POLICY LIMIT	\$ 500000											
D	Blanket Bldrs Risk	MX197910117	06/02/06	06/02/07								

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS  
**Project Location: Owenton, KY Description: Repairing & Repainting the interior wet, interior dry & exterior of (1) 400,000 - Gallon Steel Elevated Tank "Fairgrounds Tank" The following are added as additional insureds on General Liability & Excess Liability policies: Kentucky American Water and Tank Industry Consultants their officers, agents and employees.**

<b>CERTIFICATE HOLDER</b>  KENTUCKY  Kentucky American Water Company 2300 Richmond Rd. Lexington KY 40502	<b>CANCELLATION</b>  SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL <del>SEND BY MAIL</del> <b>30</b> DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.  AUTHORIZED REPRESENTATIVE Angelo J. Zervos 
---	---

POLICY NUMBER: FLL 100038-00

COMMERCIAL GENERAL LIABILITY  
CG 24 04 10 93

**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

**WAIVER OF TRANSFER OF RIGHTS OF RECOVERY  
AGAINST OTHERS TO US**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

**SCHEDULE**

**Name of Person or Organization:**

WHERE REQUIRED BY WRITTEN CONTRACT

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

The TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US Condition (Section IV - COMMERCIAL GENERAL LIABILITY CONDITIONS) is amended by the addition of the following:

We waive any right of recovery we may have against the person or organization shown in the Schedule above because of payments we make for injury or damage arising out of your ongoing operations or "your work" done under a contract with that person or organization and included in the "products-completed operations hazard". This waiver applies only to the person or organization shown in the Schedule above.

**Delegation of Authority**  
**Chief Operating Officer**  
**Effective Date: July 10, 2006**

The following Authorization and Limitation of Corporate Authority was issued on July 14, 2006 by John Young, COO of American Water Works, Inc. This delegation of corporate authority is applicable to all companies within the American Water system.

**I. Definitions, Scope and Construction.**

**1.1 Definitions**

As used in this Authorization and Limitation of Corporate Authority,

- 1.1.1 "National CDC" and "Business Unit CDC" mean the committees authorized to approve major transactions according to the American Water Commercial Development Process guidelines subject to limitations set forth below,
- 1.1.2 "Mandate" means this Authorization and Limitation of Corporate Authority, and
- 1.1.3 "Subsidiary" means any company of which more than 50% of the voting power is held directly or indirectly by the Company.
- 1.1.4 "Corporate Mandate" means the written delegation of authority granted under the CEO's Authorization and Limitation of Authority.
- 1.1.5 "Level" means an employee's salary level within American Water's master salary structure chart.
- 1.1.6 "CIRC" (Capital Investment Review Committee) and "CIMC" (Capital Investment Management Committee) mean the committees authorized to approve major capital projects according to the American Water Capital Expenditure Governance Policy subject to limitations set forth below.
- 1.1.7 "Board" means the American Water Works Company, Inc. board of directors.
- 1.1.8 "CSC" means the American Water Customer Service Center.

**1.2 Scope – Other Documents Prevailing**

- 1.2.1 This Mandate and each delegation under it is subject to applicable law, the charter, articles or certificate of incorporation and the bylaws of the Company and each Subsidiary, resolutions of the board of directors of the Company and each Subsidiary adopted from time to time, the policies and procedures in the American Water Corporate Policies and Procedure Manuals ("CPP") and the rules governing the Commercial Development Process.
- 1.2.2 In addition, a person exercising an authority granted by this Mandate **may do so only if the transaction is also within a board approved budget or business plan**. Authority delegated hereunder is also subject to any additional restrictions imposed by those to whom the person exercising an authority reports.

### 1.3 Construction

- 1.3.1. Approval limits refer to cumulative amounts over the life of a transaction or project (i.e., total contractual commitments related to the overall transaction or project). Split commitments or payment requests may not be used to circumvent approval limits. In determining who may approve the action, the action should be considered in its entirety and not broken down into separate transactions for the purpose of qualifying for a lower spending approval.
- 1.3.2. Activities affecting or requiring resources from more than one area require the approval of each such area.
- 1.3.3. Authority delegated under this Mandate with respect to an action includes the authority to execute all documents necessary to accomplish it, whether or not the person exercising that authority is an officer. Copies of material contracts executed under this authority must be filed with the Secretary of the Company or of the appropriate Subsidiary in accordance with Company policy.
- 1.3.4. An American Water employee who is a member of the board of an American Water joint venture shall, when acting as a representative of American Water on that board, have the same authority and be subject to the same limits specified in this Mandate, subject, in all cases, to the governing instruments of the joint venture.

### 1.4 Subsidiary Board Authority

This Mandate recognizes that members of Subsidiary boards of directors have a fiduciary responsibility to act independently in the best interest of their company, and ultimately, of its shareholders, while the shareholders

**CONTRACT DOCUMENTS AND SPECIFICATIONS**

**for**

**Repairing and Repainting the Interior Wet, Interior Dry, and Exterior of**

**One 400,000 Gallon Steel Elevated Tank**

**“Fairgrounds Tank”**

**Owenton, Kentucky**

**for**

**KENTUCKY AMERICAN WATER**

**Lexington, Kentucky**

**Prepared by**

**Tank Industry Consultants**

**Headquarters:**

**7740 West New York Street  
Indianapolis, Indiana 46214**

**TIC 06.219.H310.12**

**October 11, 2006**

**CONTRACT DOCUMENTS AND SPECIFICATIONS**

for

**Repairing and Repainting the Interior Wet, Interior Dry, and Exterior of**

**One 400,000 Gallon Steel Elevated Tank**

**“Fairgrounds Tank”**

**Owenton, Kentucky**

for

**Kentucky American Water  
2300 Richmond Road  
Lexington, Kentucky 40502**

**October 11, 2006**


**Engineer**

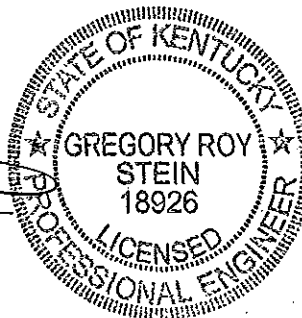
**Tank Industry Consultants**

**Headquarters:**

**7740 West New York Street  
Indianapolis, Indiana 46214**

**Certified by:**

  
**Gregory R. “Chip” Stein, P.E.  
Licensed Professional Engineer, No. 18926  
State of Kentucky**



**TIC 06.219.H310.12**



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4. Examination of Contract Documents and Site.....	00100	2
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## NOTICE TO BIDDERS

Notice is hereby given that Kentucky American Water hereinafter referred to as the OWNER, shall receive sealed bids for the following waterworks improvements:

400,000 Gallon Steel Elevated Tank in Owenton, Kentucky: The complete cleaning and repainting of the interior wet surfaces, the spot cleaning and spot coating of the interior dry surfaces, and the complete cleaning and repainting of the exterior surfaces with containment. Additional Work items include: the furnishing and installing new platform manhole covers and curbs, platform handrails, overflow pipe elastomeric check valve, ladder safe-climbing devices, clog-resistant roof vent, and screen for access tube vent; modification of ladder rung spacing to be consistent; plugging of coupling in access tube; and including other miscellaneous repairs. The Bidders attention is directed to the Detailed Technical Specifications for a complete description of the Work and the Project. It is anticipated that the work will be scheduled for spring 2007 to be completed by May 31. The Fairgrounds Tank cannot be out of service at the same time as the Perry Tank which is also schedule for work in spring 2007.

Bids will be received by Mr. Michael Galavotti, Kentucky American Water, 2300 Richmond Road, Lexington, Kentucky 40502, until the **16th day of November, 2006 at 2:00 p.m., local time**. Said bids will at that time be privately opened. Any bid received later than the above time will be returned unopened.

The contract documents, plans, specifications, and evaluation report will be on file at the office of Mr. Michael Galavotti, Kentucky American Water, 2300 Richmond Road, Lexington, Kentucky 40502; and in the office of the ENGINEER, Tank Industry Consultants - Headquarters: 7740 West New York Street, Indianapolis, Indiana 46214-2988, telephone 317/271-3100, FAX 317/271-3300, until the bid opening. The contract documents, plans, specifications, and evaluation report may be reviewed at the above locations by appointment only. Complete sets of the Bidding Documents for the Fairgrounds Tank Project may be obtained from Tank Industry Consultants by United States Priority Mail Service, for a non-refundable sum of forty dollars (\$40) each. Next day delivery service by United States Express Mail Service, Federal Express, or UPS Next Day Mail will be available from Tank Industry Consultants for a non-refundable surcharge of twenty dollars (\$20) above the cost of the specifications. Checks for the bid documents are to be made out to and delivered to Tank Industry Consultants, 7740 West New York Street, Indianapolis, Indiana 46214.

Color copies of the photographs contained in the evaluation report may be obtained from Tank Industry Consultants by United States Priority Mail Service, for a non-refundable sum of seventy-five dollars (\$75) per set. Next day delivery service by United States Express Mail Service, Federal Express, or UPS Next Day Mail will be available from Tank Industry Consultants for a non-refundable surcharge of twenty dollars (\$20) above the cost of the photographs. Checks for color copies of the photographs are to be made out to and delivered to Tank Industry Consultants, 7740 West New York Street, Indianapolis, Indiana 46214 and may be combined with the checks for the bid documents.

All materials furnished and labor performed incident to and required for the proper and satisfactory execution of the contracts shall be furnished and performed in accordance with the requirements of the drawings and specifications, and any addenda thereto, prepared by Tank Industry Consultants, 7740 West New York Street, Indianapolis, Indiana 46214, FAX 317/271-3300.

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**Submitting a Bid on the forms that will be bound with the Contract Documents shall acknowledge that the tank and site have been inspected by the BIDDER or that the right to do so has been waived.**

The Bidder's attention is directed to the Instructions to Bidders for the following information:

1. Requirements for Bid Security
2. Qualifications of Bidders

The Bidder's attention is directed to the Agreement for Time of Completion and Liquidated Damages requirements.

The Bidder's attention is directed to the General Conditions for the requirements of the Qualifications of Insurers and Sureties.

Dated this 11th day of October, 2006.

Mr. Michael Galavotti  
Kentucky American Water  
2300 Richmond Road  
Lexington, Kentucky 40502

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## INSTRUCTIONS TO BIDDERS

### 1. DEFINED TERMS

- 1.1. Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:
- A. *Bidder* – The individual or entity who submits a bid directly to the OWNER, as distinct from a Sub-Bidder, who submits a bid to the BIDDER.
  - B. *Successful Bidder* – The lowest responsible Bidder submitting a responsive Bid to whom OWNER (on the basis of the OWNER'S evaluation as herein provided) makes an award.
  - C. *Bidding Documents* – The Bidding Requirements (Notice to Bidders, Instructions to Bidders, Bid Form with any supplements, and Bid Security) and the proposed Contract Documents (including all Addenda issued prior to the receipt of Bids).

### 2. COPIES OF BIDDING DOCUMENTS

- 2.1. No refund shall be given for returned sets of Bidding Documents or color photographs.
- 2.2. Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER nor ENGINEER assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.3. OWNER and ENGINEER in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

### 3. QUALIFICATIONS OF BIDDERS

- 3.1. To demonstrate qualifications to perform the Work, each BIDDER must complete the Bid Form in its entirety and submit with the Bid a completed Bidder's Financial Statement. Each Bid must contain evidence of Bidder's qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the contract.
- 3.2. Each BIDDER must demonstrate that they have been in business under their current business name for a minimum of 5 years prior to the date of receipt of bids. Failure to comply with this requirement may entitle the OWNER to reject the Bid.
- 3.3. Each BIDDER shall submit information on the 5 most recently completed, similar projects, including tank size, cost, and schedule. Failure to comply with this requirement may entitle the OWNER to reject the Bid.

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#### 4. EXAMINATION OF CONTRACT DOCUMENTS AND SITE

##### 4.1. Subsurface and Physical Conditions

###### A. The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that ENGINEER has used in preparing the Bidding Documents. No reports of explorations and tests of subsurface conditions at or contiguous to the Site are available or were used by ENGINEER in preparing the Bidding Documents
2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Bidding Documents.

###### B. Copies of reports and drawings referenced in paragraph 4.1.A will be made available by OWNER to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in paragraph 4.2 of the General Conditions has been identified and established in paragraph 4.2 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings.

##### 4.2. Underground Facilities

###### A. Information and data reflected in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based upon information furnished to OWNER and ENGINEER by Owners of such Underground Facilities, including OWNER, or others.

##### 4.3. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in Paragraphs 4.2 and 4.3 of the General Conditions.

##### 4.4. On request in advance and after submittal of Bidder's evidence of insurance coverage meeting the limits designated in the Supplementary Conditions, OWNER will provide each BIDDER access to the site to conduct such examinations, investigations, explorations, tests, and studies as BIDDER deems necessary for submission of a Bid. BIDDER shall fill all holes, clean up and restore the site to its former condition upon completion of such explorations, investigations, tests and studies.

##### 4.5. Reference is made to Article 7 of the General Conditions for the identification of the general nature of other work that is to be performed at the Site by the OWNER or others (such as utilities and other prime contractors) that relates to the Work for which a Bid is to be submitted. On request, OWNER will provide to each Bidder for examination access to or copies of the Contract Documents (other than portions thereof related to price) for such other work.

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- 4.6. It is the responsibility of each BIDDER before submitting a Bid to:
- A. examine and carefully study the Bidding Documents, including any Addenda and the other related data identified in the Bidding Documents;
  - B. visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work;
  - C. become familiar with and satisfy Bidder as to all federal, state and local Laws and Regulations that may affect cost, progress, or performance of the Work;
  - D. obtain and carefully study (or assume responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by the Bidder, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;
  - E. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;
  - F. become aware of the general nature of the work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents;
  - G. correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;
  - H. promptly give ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by ENGINEER is acceptable to Bidder; and
  - I. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.
- 4.7. The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by the ENGINEER are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

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## 5. **SITE AND OTHER AREAS**

- 5.1. The Site is identified in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by the CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by OWNER unless otherwise provided in the Bidding Documents.

## 6. **INTERPRETATIONS AND ADDENDA**

- 6.1. All questions about the meaning or intent of the Bidding Documents are to be submitted to ENGINEER in writing. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by ENGINEER as having received the Bidding Documents. Questions received less than ten (10) days prior to the opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 6.2. Addenda may also be issued to clarify, correct, or change the Bidding Documents as deemed advisable by OWNER or ENGINEER.

## 7. **BID SECURITY**

- 7.1. A bid must be accompanied by Bid security made payable to OWNER in an amount of ten percent (10%) of the BIDDER'S Total Amount Bid and in the form of a Bid Bond issued by a surety meeting the requirements of Paragraph 5.1, 5.2, 5.3, and 5.4 of the General Conditions or a certified or bank check.
- 7.2. The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within fifteen (15) days after the Notice of Award, OWNER may annul the Notice of Award and the Bid security of that Bidder will be forfeited up to the difference in bids between the Successful Bidder and the next acceptable Bidder. The Bid security of other Bidders whom the OWNER believes to have reasonable chance of receiving the award may be retained by the OWNER until the earlier of seven days after the Effective Date of the Agreement or the expiration of the period that bids are subject to acceptance, whereupon Bid security furnished by such Bidders will be returned.
- 7.3. Bid security with Bids which are not competitive will be returned within seven (7) days after the Bid opening.

## 8. **LETTER OF SURETY**

- 8.1. Each bid must be accompanied by a letter of surety executed by the BIDDER'S surety company stating that if the Bidder is awarded the project, the surety will execute a performance bond and a

labor & material payment bond each in the amount equal to one hundred percent (100%) of the contract.

**9. CONTRACT TIME**

- 9.1. The numbers of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) also completed and ready for final payment are set forth in the Agreement.

**10. LIQUIDATED DAMAGES**

- 10.1. Provisions for liquidated damages are set forth in the Agreement.

**11. SUBSTITUTE AND "OR-EQUAL" ITEMS**

- 11.1. The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in the General Conditions and may be supplemented in the General Requirements.

**12. SUBCONTRACTORS, SUPPLIERS AND OTHERS**

- 12.1. The identity of certain Subcontractors, Suppliers and other persons and organizations (including those who are to furnish the principal items of material and equipment) shall be submitted with the Bid Form. Such a list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, person or organization if requested by OWNER. If OWNER or ENGINEER after due investigation has reasonable objection to any proposed Subcontractor, Supplier, other person or organization, either OWNER or ENGINEER may, before the Notice of Award is given, require the apparent Successful Bidder to submit an acceptable substitute, in which case the apparent Successful Bidder shall submit an acceptable substitute, Bidder's price will be increased (or decreased) by the difference in cost occasioned by such substitution, and OWNER may consider such price adjustment in evaluating Bids and making the contract award.
- 12.2. If apparent Successful Bidder declines to make any such substitution, OWNER may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which OWNER or ENGINEER makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the Effective Date of the Agreement as provided in paragraph 6.8 of the General Conditions.
- 12.3. CONTRACTOR shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom CONTRACTOR has reasonable objection.

**13. BID FORM**

- 13.1. The Bid Form is included with the Bidding Documents. Additional copies may be obtained from the ENGINEER or OWNER at the cost stipulated in the Notice to Bidders.
- 13.2. All blanks on the Bid Form must be completed by printing in black or blue ink or by typewriter with a black or blue ribbon and the Bid signed. A Bid price shall be indicated for each Bid Item listed therein, or the words "No Bid," "No Change," or "Not Applicable" entered.
- 13.3. A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.
- 13.4. A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.
- 13.5. A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown below the signature.
- 13.6. A Bid by an individual shall show the Bidder's name and official address.
- 13.7. A Bid by a joint venture shall be executed by each joint venturer in the manner indicated on the Bid form. The official address of the joint venture shall be shown below the signatures.
- 13.8. All names shall be typed or printed in ink below the signatures.
- 13.9. The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.10. The address and telephone number for communications regarding the Bid shall be shown.
- 13.11. All items and questions in the Bid Form shall be answered completely and accurately prior to submitting the Bid. Failure to provide the information requested in the Bid Form may entitle the OWNER to reject the Bid.
- 13.12. The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the Contract. Bidder's state contractor license number for the state of the Project, if any, shall also be shown on the Bid Form.

**14. BASIS OF BID; EVALUATION OF BIDS****14.1. Lump Sum**

- A. Bidders shall submit a Bid on a lump sum basis for the Base Bid and include a separate price for each alternate, if any, described in the Bidding Documents as provided for in the

Bid Form. The price for each alternate will be the amount added to the Base Bid if OWNER selects the alternate.

#### 14.2. Unit Price

- A. Bidders shall submit a Bid on a unit price basis for each unit price item of Work listed in the Bid Form.
- B. The total of all estimated prices will be determined as the sum of the products of the estimated quantity of each item and the unit price Bid for the item. The final quantities and Contract Price will be determined in accordance with paragraph 11.3 of the General Conditions.
- C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

#### 15. SUBMITTAL OF BID

- 15.1. A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to Bid and shall be enclosed in an opaque sealed envelope plainly marked with the Project title, the name and address of the Bidder, and shall be accompanied by the Bid security and other required documents. If the Bid is sent through the mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." The Bidder is solely responsible for the timely arrival of all bids, whether hand delivered or forwarded by mail. Kentucky American Water and Tank Industry Consultants accept no responsibility for lost or misdirected bids. Prospective Bidders are furnished one copy of the Bidding Documents. The Bidder shall return the bound copy of the Bidding and Contract Documents completely executed in accordance with the advertisement or invitation to Bid and Instructions to Bidders.

#### 16. MODIFICATION AND WITHDRAWAL OF BID

- 16.1. A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where the Bids are to be submitted prior to the date and time for the opening of Bids.
- 16.2. If, within twenty-four hours after Bids are opened, any Bidder files a duly signed written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further Bidding on the Work.

#### 17. OPENING OF BIDS

- 17.1. Bids will be opened privately.

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**18. BIDS TO REMAIN SUBJECT TO ACCEPTANCE**

- 18.1. All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but OWNER may, in its sole discretion, release any Bid and return the Bid security prior to that date.

**19. AWARD OF CONTRACT**

- 19.1. OWNER reserves the right to reject any and all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. OWNER further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsible. OWNER may also reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder. OWNER also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.
- 19.2. More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.
- 19.3. In evaluating Bids, OWNER will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 19.4. In evaluating Bids, OWNER will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.
- 19.5. OWNER may conduct such investigations as OWNER deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the Work in accordance with the Contract Documents.
- 19.6. If the contract is to be awarded, OWNER will award the Contract to the Bidder whose Bid is in the best interests of the Project.

**20. CONTRACT SECURITY AND INSURANCE**

- 20.1. Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth OWNER'S requirements as to performance and payment Bonds and insurance. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by the required performance and payment bonds and necessary insurances.

**21. SIGNING OF AGREEMENT**

- 21.1. When OWNER gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within fifteen (15) days thereafter,

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Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER with the required Bonds. Within fifteen (15) days thereafter OWNER shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Specifications and Drawings with appropriate identification.

END OF INSTRUCTIONS TO BIDDERS

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**BID FORM**

**PROJECT IDENTIFICATION:** Repairing and Repainting the Interior Wet, Interior Dry, and Exterior of One 400,000 Gallon Steel Elevated Tank, "Fairgrounds Tank," in Owenton, Kentucky. The BIDDER is referred to the following Detailed Technical Specifications for the complete Scope of Work.

**CONTRACT IDENTIFICATION AND NUMBER:** \_\_\_\_\_

**THIS BID IS SUBMITTED TO:** Kentucky American Water  
2300 Richmond Road  
Lexington, Kentucky 40502

**ATTENTION:** Mr. Michael Galavotti

1.01 The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an agreement with OWNER in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices indicated in this Bid and within the times indicated in the Contract Agreement and in accordance with the other terms and conditions of the Bidding Documents.

2.01 BIDDER accepts all of the terms and conditions of the Notice to Bidders, and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of OWNER.

3.01 In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

A. BIDDER has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all which is hereby acknowledged.

<u>Addendum Number</u>	<u>Addendum Date</u>
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. BIDDER has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except

Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions, and (2) reports and drawings of a Hazardous Environmental Condition, if any, which has been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions.

- E. BIDDER has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the work or which relate to any aspect of the means, methods, techniques, sequences, and procedures or construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.
  - F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
  - G. Bidder is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents.
  - H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
  - I. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by ENGINEER is acceptable to Bidder.
  - J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
- 4.01 Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

5.01 In submitting this bid, BIDDER provides the following history of BIDDER company experience.

A. What year did the Bidder start operating under its present name? 1954

B. What similar public works projects has your organization completed?

CONTRACT AMOUNT	CLASS OF WORK	WHEN COMPLETED	NAME, ADDRESS & PHONE # OF OWNER
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*please see attachment*

C. What similar public works projects is your organization now in process of construction?

CONTRACT AMOUNT	CLASS OF WORK	WHEN COMPLETED	NAME, ADDRESS & PHONE # OF OWNER
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D. Have you ever failed to complete any work awarded to you? NO

If so, where and why? \_\_\_\_\_

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E. List references from private firms for which you have performed similar work.

*Please see attachment*

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6.01 BIDDER will supply sufficient and detailed information to the following statements and questions on the pages supplied.

- A. Explain your plan or layout for performing proposed work. Describe crew size and equipment necessary to complete project in required time.

- B. If you intend to sublet any portion of the Work, state the name and address of each Subcontractor, equipment to be used by the Subcontractor, and whether you expect to require a performance bond.

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C. What equipment do you intend to use for the proposed project?

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TIC 06.219.H310.12-PB

"Fairgrounds Tank," Owenton, Kentucky

11-Oct-06

- D. Have you made contracts or received offers for all materials within prices used in preparing your proposal?

(CIRCLE ONE)  YES  NO

7.01 Attachment of BIDDER'S most recent twelve-month financial statement is mandatory. Any bid submitted without said financial statement as required shall thereby be rendered invalid. The financial statement provided hereunder to the governing body awarding the contract must be specific enough in detail so that said governing body can make a proper determination of the BIDDER'S capability for completing the project if awarded.

8.01 Bidder will complete the Work for the following listed Work items for the prices listed on the BIDDER'S PROPOSAL:

Bid Item 1: (Base Bid for 400,000 Gallon Elevated Tank)  
(Lump Sum)

The complete cleaning and repainting of the interior wet surfaces, the spot cleaning and spot coating of the interior dry surfaces, and the complete cleaning and repainting of the exterior surfaces with containment. Additional Work items include: the furnishing and installing new platform manhole covers and curbs, platform handrails, overflow pipe elastomeric check valve, ladder safe-climbing devices, clog-resistant roof vent, and screen for access tube vent; modification of ladder rung spacing to be consistent; plugging of coupling in access tube; and including other miscellaneous repairs. All of this Work shall be in accordance with the **Detailed Technical Specifications**.

Bid Item 2: (Unit Price)  
(Add or Deduct from the **Total Amount Bid**)

Repair Welding: After the initial abrasive blast cleaning, any pits defined for pit welding by the FIELD OBSERVER shall be repaired by welding. All areas of apparent seam deterioration shall be initially abrasive blast cleaned, and any seam corrosion or undercut defined by the FIELD OBSERVER shall be repaired by arc-gouging and welding. **The number of man-hours of repair welding shall be paid for by the unit price per man-hour listed on the BIDDER'S PROPOSAL.**

Bid Item 3: (Unit Price)  
(Add or Deduct from the **Total Amount Bid**)

Pit Filling and Surfacing: After the specified surface preparation, any pits, rough areas or seams defined for pit filling or surfacing by the FIELD OBSERVER shall be filled with solventless polyamide epoxy seam sealer of the type recommended by the supplier of the

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interior paint system. Costs for all labor, equipment, supplies, rigging, and other associated costs for application of the solventless polyamide epoxy seam sealer shall be included in the unit price per gallon. The number of gallons of pit filling shall be paid for by the unit price per gallon listed on the **BIDDER'S PROPOSAL**.

Bid Item 4: (Unit Price)  
(Add or Deduct from the **Total Amount Bid**)

Interior Chipping and/or Grinding: Any irregular surfaces, including but not limited to surface protrusions, burrs, fitting scars, sharp edges or corners, weld spatter, weld overlap and rough weld beads shall be removed from all interior surfaces of the tank in accordance with the **Detailed Technical Specifications**. The number of chipping and/or grinding man-hours on the tank interior shall be paid for by the unit price per man-hour listed on the **BIDDER'S PROPOSAL**.

Bid Item 5: (Unit Price)  
(Add or Deduct from the **Total Amount Bid**)

Additional Work: It is felt that the **Detailed Technical Specifications** adequately describe the work to be performed; however, in the event that during the course of the work it is found that additional work is required and it is authorized in writing by the ENGINEER and the OWNER, this work shall be paid for at the following price per single man-hour, including all welding, equipment, normal rigging, labor, supplies, overhead, insurance, and profit. The number of unanticipated additional work man-hours shall be paid for by the unit price per man-hour listed on the **BIDDER'S PROPOSAL**.

Bid Item 6: (Lump Sum)  
(Add or Deduct from the **Total Amount Bid**)

Existing Antenna: The omni-directional antenna on the roof of the tank, the cables extending up the interior dry area and on the roof, and associated accessories shall be protected from all damage and dust or other deleterious material infiltration during the operations of the CONTRACTOR. The antenna shall remain in service during the Project. The cost of protecting the antenna equipment and working around the antenna equipment shall be paid for by the lump sum price listed on the **BIDDER'S PROPOSAL**.

Bid Item 7: (Lump Sum)  
(Add or Deduct from the **Total Amount Bid**)

Remove Vegetation Around Base of Tank and Regrade: All earth and vegetation which has encroached on the foundation and the tank base plate and the dry brush around the overflow pipe splash pad shall be removed. In addition, the site shall be regraded to

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expose the top 6 in. to 12 in. of the concrete foundation and to allow for proper drainage of the site. This work shall be performed prior to the start of cleaning and painting operations. The top of the foundation is currently 4-1/2 in. to 9-1/2 in. above grade. The removal of vegetation and regrading of the site shall be paid for by the lump sum price listed on the BIDDER'S PROPOSAL.

Bid Item 8: (Lump Sum)  
(Add or Deduct from the Total Amount Bid)

Sign and Logo: After the proper curing of the finish exterior coat of polyurethane, the Kentucky American Water logo and sign as shown in Drawing SL shall be applied on one side of the container in two additional coats of fluorourethane in the appropriate thickness for the fluorourethane used. The OWNER shall approve the final colors for the logo and sign. The application of the logo and sign shall be paid for by the lump sum price listed on the BIDDER'S PROPOSAL.

Alternate Bid Item 9: (Lump Sum)  
(Add to the Total Amount Bid)

Complete Cleaning and Painting of Interior Dry Surfaces: The sum to be added to the Base Bid Item 1 for complete cleaning and painting the tank interior dry surfaces in accordance with Section 09874 – Interior Dry Coating Systems of the Specifications.

Alternate Bid Item 10: (Lump Sum)  
(Add to the Total Amount Bid)

Clean and Paint Inlet/Outlet Pipe and Replace Insulation: The sum to be added to the Base Bid Item 1 for removing and disposing of the insulation on the inlet/outlet pipe, cleaning and painting the outside of the inlet/outlet pipe, and installing new insulation in accordance with Section 13200 and Section 09874 of the Specifications.

Alternate Bid Item 11: (Lump Sum)  
(Add to the Total Amount Bid)

Slip-Resistant Interior Dry Ladder Rungs: The sum to be added to the Base Bid Item 1 for modification of all interior dry ladder rungs to be slip-resistant in accordance with Section 13200 of the Specifications.

Alternate Bid Item 12: (Lump Sum)  
(Add to the **Total Amount Bid**)

Slip-Resistant Interior Container Ladder Rungs: The sum to be added to the Base Bid Item 1 for modification of the interior container ladder rungs to be slip-resistant in accordance with Section 13200 of the Specifications.

Note: The BIDDER shall use either black or blue ink or typewriter (black ribbon) in completing the Proposal Form. Each line item amount must be given. Failure to do so will result in disqualification of BIDDER.

BIDDERS are reminded that they must bid on the issued plans and specifications, as amended. Any deviation, conditions or attachments made by the BIDDER himself thereto may render the Bid nonresponsive and be cause for its rejection.

Bid Security to be based on the **TOTAL AMOUNT BID** and shall be the percentage indicated in the Instructions to Bidders.

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**BIDDER'S PROPOSAL**

Repairing and Repainting the Interior Wet, Interior Dry, and Exterior of  
One 400,000 Gallon Steel Water Tank  
"Fairgrounds Tank"

Statement of Estimated Quantities and Proposal Prices

Item No.	Item Description	Est. Qnty.	Unit	Unit Price	Bid Amount
1	Base Bid with containment	1	Lump Sum	N.A.	\$ <u>245,000</u>
2	Repair Welding <u>If Required</u>	30	man-hour	\$ <u>150</u>	\$ <u>4,500</u>
3	Pit Filling <u>If Required</u>	2	gallon	\$ <u>600</u>	\$ <u>1,200</u>
4	Interior Chipping & Grinding <u>If Required</u>	40	man-hour	\$ <u>115</u>	\$ <u>4,600</u>
5	Additional Work <u>If Required</u>	60	man-hour	\$ <u>150</u>	\$ <u>9,000</u>
6	Existing Antenna	1	Lump Sum	N.A.	\$ <u>6,500</u>
7	Remove Vegetation Around Base of Tank and Regrade <u>If Selected</u>	1	Lump Sum	N.A.	\$ <u>2,500</u>
8	Sign and Logo <u>If Selected</u>	1	Lump Sum	N.A.	\$ <u>6,400</u>

**TOTAL AMOUNT BID**  
(Items 1 through 8 inclusive)

\$ 245,000

**TOTAL AMOUNT BID** Two Hundred Forty-Five Thousand Dollars  
(written in words)

Alternate Bid Items

Item No.	Item Description	Est. Qnty.	Unit	Unit Price	Bid Amount
9	Complete Cleaning and Painting of Interior Dry Surfaces <u>If Selected</u>	1	Lump Sum	N.A.	\$ <u>28,000</u>
10	Clean and Paint Inlet/Outlet Pipe and Replace Insulation <u>If Selected</u>	1	Lump Sum	N.A.	\$ <u>14,000</u>
11	Slip-Resistant Interior Dry Ladder Rungs <u>If Selected</u>	1	Lump Sum	N.A.	\$ <u>1,100</u>
12	Slip-Resistant Interior Container Ladder Rungs <u>If Selected</u>	1	Lump Sum	N.A.	\$ <u>600</u>

Unit Prices have been computed in accordance with the General Conditions.

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Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities provided, determined as provided in the Contract Documents.

The proposed REPAIR SUBCONTRACTOR is:

\_\_\_\_\_ name

\_\_\_\_\_ street

\_\_\_\_\_ city state zip

The proposed DISPOSAL SUBCONTRACTOR is:

\_\_\_\_\_ name

\_\_\_\_\_ street

\_\_\_\_\_ city state zip

9.01 Bidder agrees that the Work will be substantially completed, and completed and ready for final payment in accordance with the General Conditions on or before the dates and within the number of calendar days indicated in the Agreement.

10.01 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the time specified in the Agreement.

11.01 The following documents are attached and made part of this Bid:

- A. Required Bid security in the form of a Bid Bond issued by a surety meeting the requirements of the General Conditions, or in the form of a certified or bank check. Bid security shall list Kentucky Agent for Service of Process;
- B. Required Letter from Surety;
- C. A tabulation of Subcontractors, Suppliers and other individuals and entities required to be identified in this Bid;
- D. Required BIDDER'S most recent twelve-month financial statement;

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- E. Required Non-Collusion Affidavit;
- F. Proposed cleaning and painting methods;
- G. Proposed method of containing all cleaning and painting debris on the tank site;
- H. Name(s) of the CONTRACTOR'S COMPETENT PERSON(S);
- I. All items and questions in this Bid Form shall be answered completely and accurately prior to submitting this Bid. Failure to provide the information requested in this Bid Form may entitle the OWNER to reject the Bid.

12.01 Communications concerning this Bid shall be addressed to:

Tank Industry Consultants  
 7740 West New York Street  
 Indianapolis, Indiana 46214  
 FAX 317/271-3300  
 Attention: Mr. Patrick J. Brown, P.E.

13.01 The terms used in this Bid with initial capital letters have the meanings indicated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

SUBMITTED on November 16, 2006

State Contractor License No. \_\_\_\_\_ (If applicable)

If Bidder is:

An Individual

Name (typed or printed): \_\_\_\_\_

By: \_\_\_\_\_ (SEAL)  
*(Individual's signature)*

Doing Business as: \_\_\_\_\_

Business Address: \_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

A Partnership

Partnership Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
*(Signature of general partner – attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Business Address: \_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

A Corporation

Corporation Name: \_\_\_\_\_ (SEAL)

State of Incorporation: \_\_\_\_\_

Type (General Business, Professional, Service, Limited Liability): \_\_\_\_\_

By: \_\_\_\_\_ (SEAL)  
*(Signature – attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_ (CORPORATE SEAL)

Attest: \_\_\_\_\_  
*(Signature of Corporate Secretary)*

Business Address: \_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

Date of Qualification to do business is \_\_\_\_\_

A Joint Venture

Joint Venturer Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
*(Signature of joint venturer partner – attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Business Address: \_\_\_\_\_

\_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

Joint Venturer Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
*(Signature of joint venturer partner – attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Business Address: \_\_\_\_\_

\_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

Phone and FAX Number, and Address for receipt of official communications:

\_\_\_\_\_

\_\_\_\_\_

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)





### NON-COLLUSION AFFIDAVIT

The BIDDER, George Kountoupes Painting Co., by its officers, Agents, representatives present at the time of filing this Bid, being duly sworn, on their oaths say that neither they nor any of them have in any way, directly or indirectly, entered into any agreement or agreements with any other BIDDER, or with any public official. Whereby such affiant or affiants or either of them, has paid or is to pay to such BIDDER or public official, any sum of money, or has given or is to give to such other BIDDER or public official anything of value whatever, or such affiant or affiants or either of them has not directly or indirectly entered into any agreement or agreements or arrangements with any other BIDDER or BIDDERS which tends to or does lessen or destroy free competition in the letting of the Contract sought for by the attached bids; that no inducement of any form or character other than that which appears upon the face of the bids will be suggested, offered, paid or delivered to any person whomsoever to influence the acceptance of said bid or awarding of the Contract; nor has this BIDDER any agreement or understanding of any kind whatsoever, with any other person whomsoever to pay, deliver to, or share with any other person in any way or manner, any of the proceeds of the contract sought by this bid.

(SEAL)

George Kountoupes Painting Co.  
BIDDER

By: Cary Kountoupes  
Cary Kountoupes, Secretary  
Title

Subscribed and sworn to before me by

\_\_\_\_\_

This 15<sup>th</sup> day of November, 2006

(SEAL)

My Commission Expires \_\_\_\_\_

Dotini Filypo  
Notary Public

In and For Wayne County, Michigan



**NOTICE OF AWARD**

Dated: December 14, 2006

TO: George Kountoupes Painting Company

ADDRESS: 661 Southfield Rd.  
Lincoln Park, Michigan 48146

ENGINEER'S Project No.: TIC 06.219.H310.12

Contract For:

**Repairing and Repainting the Interior Wet, Interior Dry, and Exterior of  
One 400,000 Gallon Steel Elevated Tank  
"Fairgrounds Tank"  
Owenton, Kentucky**

You are notified that your Bid dated November 16, 2006, for the above Contract has been considered. You are the apparent Successful Bidder and have been awarded the contract for the above named Project, which specifically includes the following Bid Item Numbers:

1. Base Bid (Lump Sum).....	\$245,000
2. Repair Welding (30 man-hours * \$150 per man-hour).....	\$4,500
3. Pit Filling (2 gallons * \$600 per gallon) .....	\$1,200
4. Interior Chipping & Grinding (40 man-hours * \$115 per man-hour) .....	\$4,600
5. Unanticipated Additional Work (60 man-hours * \$150 per man-hour)...	\$9,000
6. Existing Antenna (Lump Sum) .....	\$6,500
7. Remove Vegetation Around Base of Tank and Regrade .....	\$2,500
8. Sign and Logo (Lump Sum).....	\$6,400
11. Slip-Resistant Interior Dry Ladder Rungs (Lump Sum).....	\$1,100
12. Slip-Resistant Interior Container Ladder Rungs (Lump Sum).....	\$600

The Contract Price of your Contract is two hundred eighty-one thousand four hundred and 00/100 Dollars (\$281,400).

Three copies of each of the proposed Contract Documents accompany this Notice of Award.

You must comply with the following conditions precedent within fifteen days of the date of this Notice of Award, that is by December 29, 2006.

1. Deliver to Tank Industry Consultants three fully executed counterparts of the Contract Documents. Each of the Contract Documents must bear your signature on the signature page of the Agreement.
2. Deliver with the executed Contract Documents the Contract Security (Bonds) as specified in the Instructions to Bidders (Article 20), and General Conditions.
3. The OWNER (Kentucky American Water) and ENGINEER (Tank Industry Consultants) shall be endorsed as additional insured on all General Liability, Automobile Liability & Excess Liability policies per the Supplementary Conditions.

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4. As stated in the Agreement paragraph 4.02.A. on page 00510-2, it is anticipated that the work will be scheduled for spring 2007 to be completed by May 31, and the Fairgrounds Tank cannot be out of service at the same time as the Perry Tank which is also schedule for work in spring 2007.

Failure to comply with these conditions within the time specified will entitle OWNER to consider your Bid in default, to annul this Notice of Award and to declare your Bid security forfeited.

Within fifteen days after you comply with the above conditions, OWNER will return to you one fully executed counterpart of the Contract Documents.

Tank Industry Consultants  
(Engineer)

BY:   
(Authorized Signature)

Vice President  
(Title)

FOR: Kentucky American Water  
(Owner)

Copy to OWNER

## AGREEMENT

**THIS AGREEMENT** is by and between Kentucky American Water (hereinafter called OWNER), and George Kountoupes Painting Co. (hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

### ARTICLE 1 -- WORK

1.01. CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

The complete cleaning and repainting of the 400,000 gallon steel elevated tank in Owenton, Kentucky on the interior wet surfaces, the spot cleaning and spot coating of the interior dry surfaces, and the complete cleaning and repainting of the exterior surfaces with containment. Additional Work items include: the furnishing and installing new platform manhole covers and curbs, platform handrails, overflow pipe elastomeric check valve, ladder safe-climbing devices, clog-resistant roof vent, and screen for access tube vent; modification of ladder rung spacing to be consistent; plugging of coupling in access tube; and including other miscellaneous repairs.

### ARTICLE 2 -- THE PROJECT

2.01. The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

Repairing and Repainting the Interior Wet, Interior Dry, and Exterior of One 400,000 Gallon Steel Elevated Tank, "Fairgrounds Tank," Owenton, Kentucky.

### ARTICLE 3 -- ENGINEER

3.01. The Project has been designed by Tank Industry Consultants who is hereinafter called ENGINEER and who is to act as OWNER'S representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

### ARTICLE 4 -- CONTRACT TIME

4.01. Time of the Essence

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

00510-1

#### 4.02. Days to Achieve Substantial Completion and Final Payment

- A. The Work on the 400,000 gallon steel elevated tank shall be Substantially Completed within ninety (90) calendar days after the date when the Contract Times commence to run as provided in paragraph 2.3 of the General Conditions, and completed and ready for final payment in accordance with paragraph 14.8 of the General Conditions within one hundred five (105) calendar days after the date when the Contract Times commence to run. It is anticipated that the work will be scheduled for spring 2007 to be completed by May 31. The Fairgrounds Tank cannot be out of service at the same time as the Perry Tank which is also schedule for work in spring 2007.

#### 4.03. Liquidated Damages

- A. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss and the OWNER'S ability to provide the public with a safe drinking water supply may be impaired if the Work is not completed within the times specified in paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as penalty) CONTRACTOR shall pay the OWNER five hundred dollars (\$500) for each calendar day that expires after the time specified in paragraph 4.02 for Substantial Completion until the Work is substantially complete. After Substantial Completion, if CONTRACTOR shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by OWNER, CONTRACTOR shall pay the OWNER one hundred dollars (\$100) for each calendar day that expires after the time specified in paragraph 4.02 for completion and readiness for final payment until the Work is completed and ready for final payment.

### ARTICLE 5 -- CONTRACT PRICE

5.01. OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents an amount in current funds as follows:

- A. For all Work, at the prices state in CONTRACTOR'S Bid, attached hereto as an exhibit.

### ARTICLE 6 -- PAYMENT PROCEDURES

6.01. Submittal and Processing of Payments

- A. CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications will be processed by ENGINEER as provided in the General Conditions. **No separate payment shall be made for bonds, insurance, design, drawings, mobilization, containment of the cleaning and/or painting debris, or paint materials not incorporated into the Work.** Applications for Payment shall be

submitted on a suitable form acceptable to ENGINEER and OWNER such as the form bound in these Contract Documents or AIA Documents G702 and G703.

#### 6.02. Progress Payments; Retainage

- A. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR'S Applications for Payment each month during performance of the Work as provided in paragraph 6.02.A.1. below. All such payments will be measured by the schedule of values established in paragraph 2.9 of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements:
1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below, but, in each case, less the aggregate of payments previously made and less such amounts as ENGINEER shall determine, or OWNER may withhold, in accordance with paragraph 14.02 of the General Conditions.
    - a. 95% of Work completed.

#### 6.03. Final Payment

- A. Upon final completion and acceptance of the Work in accordance with paragraph 14.13 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 14.13.

### ARTICLE 7 -- CONTRACTOR'S REPRESENTATION

7.01. In order to induce OWNER to enter into this Agreement, CONTRACTOR makes the following representations:

- A. CONTRACTOR has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
- B. CONTRACTOR has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work
- C. CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. CONTRACTOR has studied carefully all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.2 of the General Conditions.
- E. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests,



studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, including applying the specific means, methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract Documents to be employed by CONTRACTOR, and safety precautions and programs incident thereto.

- F. CONTRACTOR does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- G. CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- I. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that CONTRACTOR has discovered in the Contract Documents, and the written resolution thereof by the ENGINEER is acceptable to the CONTRACTOR.
- J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

## ARTICLE 8 -- CONTRACT DOCUMENTS

### 8.01. Contents

- A. The Contract Documents consist of the following:
  - 1. This Agreement (pages 00510-1 to 00510-7, inclusive);
  - 2. Performance Bond;
  - 3. Labor & Material Payment and all other required Bonds;
  - 4. Certificate of Insurance;
  - 5. Supplementary Conditions;
  - 6. General Conditions;
  - 7. Specifications as listed in the table of contents of the Project Manual;

8. Drawings bound with the specifications;
  9. Addenda (numbers \_\_\_\_ to \_\_\_\_, inclusive);
  10. Exhibits to this Agreement:
    - a. Notice of Award;
    - b. Notice to Proceed;
    - c. Bid Form (pages 00300-1 to 00300-15, inclusive);
    - d. Documentation submitted by CONTRACTOR prior to Notice of Award;
  11. The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto:
    - a. Written Amendments;
    - b. Work Change Directives;
    - c. Change Order(s).
- B. The documents listed in paragraph 8.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 8.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in paragraph 3.5 of the General Conditions.

## ARTICLE 9 -- MISCELLANEOUS

### 9.01. Terms

- A. Terms used in this Agreement will have the meanings indicated in the Supplementary Conditions, or if not contained in the Supplementary Conditions they will have the meanings indicated in the General Conditions.

### 9.02. Assignment of Contract

- A. No assignment by a party hereto of any rights under or interest in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

9.03. Successors and Assigns

- A. OWNER and CONTRACTOR each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

9.04. Severability

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provisions.

9.05. Other Provisions

- A. The CONTRACTOR agrees to protect, defend, and save harmless the OWNER and ENGINEER against any demand for payment for the use of any patented material, process, article, or device that may enter into the manufacture, construction, or form a part of the Work covered by this agreement; and the CONTRACTOR further agrees to indemnify and save harmless the OWNER and ENGINEER from suits or actions of every nature and description brought against them for, or on account of any injuries or damages received or sustained by any party or parties, by, or from the acts of the CONTRACTOR, his servants, or agents.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR, and ENGINEER. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or by ENGINEER on their behalf.

This Agreement will be effective on February 2, 2007 (which is the Effective Date of the Agreement).

**OWNER**

KENTUCKY AMERICAN WATER

By: [Signature]

[CORPORATE SEAL]

Attest: [Signature]

Address for giving notices

Kentucky American Water

2300 Richmond Road

Lexington, Kentucky 40502

(If OWNER is a corporation, attach evidence of authority to sign. If OWNER is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of Owner-Contractor Agreement.)

Designated Representative:

Name: Virginia-Bibb W. Golden

Title: Project Manager

Address: 2300 Richmond Rd

Lexington, KY 40502

Phone: 859-268-6357

Facsimile: 859-268-6374

**CONTRACTOR**

George Kountoupes, Painting Co.

By: [Signature]

[CORPORATE SEAL]

Attest: [Signature]

Address for giving notices

George Kountoupes Painting Co.

661 Southfield Rd.

LINCOLN PARK, MI 48146

License No.: \_\_\_\_\_  
(Where applicable)

Kentucky Agent for Service of Process:  
The CT Corporation

(If CONTRACTOR is a corporation or partnership, attach evidence of authority to sign.)

Designated Representative:

Name: Cory Kountoupes

Title: Secretary

Address: 661 Southfield

Lincoln Park, MI 48146

Phone: 313-388-9400

Facsimile: 313-389-1298

[Faint, illegible text]

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**NOTICE TO PROCEED**

Dated \_\_\_\_\_, 20\_\_

TO: \_\_\_\_\_  
(Bidder)ADDRESS: \_\_\_\_\_  
\_\_\_\_\_OWNER'S Contract No. \_\_\_\_\_ ENGINEER'S Project No.: TIC 06.219.H310.12  
Contract For:

**Repairing and Repainting the Interior Wet, Interior Dry, and Exterior of  
One 400,000 Gallon Steel Elevated Tank  
"Fairgrounds Tank"  
Owenton, Kentucky**

You are notified that the Contract Time under the above contract will commence to run on \_\_\_\_\_, 20\_\_. By that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement, the date of Substantial Completion is \_\_\_\_\_, 20\_\_ and the date of readiness for final payment is \_\_\_\_\_, 20\_\_.

Before you may start any Work at the site, you must Submit a Proposed Construction Bar Chart or Schedule indicating the various start and finish dates of the different phases of the project. This chart should also include the estimated dollar amount of each phase. The estimated dollar amount of mobilization, bonds, and insurance shall be pro-rated into respective phases. The Bar Chart or Schedule shall, as a minimum, include the following phases:

1. Move onto site and rig tank, including containment
2. Repair Work
3. Interior wet cleaning and priming
4. Interior wet intermediate coating
5. Interior wet finish coating
6. Tank disinfection
7. Interior dry spot cleaning and spot priming
8. Interior dry spot finish coating
9. Exterior cleaning and priming
10. Exterior intermediate coating
11. Exterior finish coating
12. Site clean-up

Tank Industry Consultants  
(Engineer)

BY: \_\_\_\_\_  
(Authorized Signature)\_\_\_\_\_  
(Title)FOR: Kentucky American Water  
(Owner)

Copy to OWNER

00520-1



**CHANGE ORDER**

Distribution to:	OWNER	X
	ENGINEER	X
	CONTRACTOR	X
	FIELD	X
	OTHER	_____

PROJECT: "Fairgrounds Tank"  
Owenton, Kentucky

CHANGE ORDER NUMBER:

TO: (Contractor)

INITIATION DATE:

ENGINEER'S PROJECT NO: 06.219.H310.12

CONTRACT DATE:

You are directed to make the following changes in the Contract Documents:

**No other work is changed by this Change Order. All materials shall be as specified and approved.**

Not valid until signed by both the Owner and Engineer.

Signature of the Contractor indicates his/her agreement herewith, including any adjustment in the Contract Sum or Contract Time.

The original Contract Sum was .....	\$
Net change by previously authorized Change Orders .....	\$
The Contract Sum prior to this Change Order was.....	\$
The Contract Sum will be (increased) (decreased) (unchanged) by this Change Order	\$
The new Contract Sum including this Change Order will be.....	\$
The Contract Time will be (increased)(decreased)(unchanged) by .....	_____ ( ) Days
The Date of Substantial Completion as of the date of this Change Order therefore is ..	_____

**Authorization:**

**RECOMMENDED by Engineer:**

Tank Industry Consultants  
7740 West New York Street  
Indianapolis, Indiana 46214

**APPROVED by Owner:**

Kentucky American Water  
2300 Richmond Road  
Lexington, Kentucky 40502

**ACCEPTED by Contractor:**

By: \_\_\_\_\_  
ENGINEER (Authorized Signature)

By: \_\_\_\_\_  
OWNER (Authorized Signature)

By: \_\_\_\_\_  
CONTRACTOR (Authorized Signature)

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

00530-1





## GENERAL CONDITIONS

The General Conditions contained in this part of the Contract Documents are based on the Standard General Conditions of the Construction Contract prepared by the Engineers Joint Contract Documents Committee with modifications to be consistent with American Water System Policies. Only the General Conditions contained herein are a part of the Contract Documents for the project.

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## GENERAL CONDITIONS

### ARTICLE 1 - DEFINITIONS

Whenever used in these General Conditions or in the other Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

- 1.1 *Addenda* -- Written or graphic instruments issued prior to the opening of Bids which clarify, correct or change the bidding requirements or the Contract Documents.
- 1.2 *Agreement* -- The written contract between OWNER and CONTRACTOR covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.
- 1.3 *Application for Payment* -- The form accepted by ENGINEER which is to be used by CONTRACTOR in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
- 1.4 *Asbestos* -- Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
- 1.5 *Bid* -- The offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
- 1.6 *Bonds* -- Performance and Payment bonds and other instruments of security.
- 1.7 *Change Order* -- A document recommended by ENGINEER which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
- 1.8 *Contract Documents* -- The Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post-Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders and ENGINEER's written interpretations and clarifications issued pursuant to paragraphs 3.5, 3.6.1, and 3.6.3 on or after the Effective Date of the Agreement. Shop Drawing submittals approved pursuant to paragraphs 6.26 and 6.27 and the reports and drawings referred to in paragraphs 4.2.1 and 4.2.2 are not Contract Documents.
- 1.9 *Contract Price* -- The moneys payable by OWNER to CONTRACTOR for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.9.1 in the case of Unit Price Work).
- 1.10 *Contract Times* -- The number of days or the dates stated in the Agreement (i) to achieve Substantial Completion, and (ii) to complete the Work so that it is ready for final payment as evidenced by ENGINEER's written recommendation of final payment in accordance with paragraph 14.13.
- 1.11 *CONTRACTOR* -- The person, firm or corporation with whom OWNER has entered into the Agreement.
- 1.12 *Defective* -- An adjective which when modifying the word Work refers to Work that is unsatisfactory, faulty or deficient, in that it does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER's recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER at Substantial Completion in accordance with paragraph 14.8 or 14.10).
- 1.13 *Drawings* -- The drawings which show the scope, extent and character of the Work to be furnished and performed by the CONTRACTOR and which have been prepared or approved by ENGINEER and are referred to in the Contract Documents. Shop Drawings are not Drawings as so defined.
- 1.14 *Effective Date of the Agreement* -- The date indicated in the agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver. However, the contractor has no rights or remedies arising from execution of the Agreement prior to the Commencement of Contract Times.
- 1.15 *ENGINEER* -- The person, firm or corporation named as such in the Agreement.
- 1.16 *ENGINEER's Consultant* -- A person, firm or corporation having a contract with OWNER to furnish professional services for the benefit of OWNER and ENGINEER with respect to the Project and who is identified as such in the Supplementary Conditions. The term ENGINEER's Consultant shall be deemed also to include a person, firm or corporation having a contract with ENGINEER's Consultant to furnish professional services as an independent professional associate or consultant to ENGINEER's Consultant with respect to the Project and who is identified as such in the Supplementary Conditions.
- 1.17 *Field Order* -- A written order issued by ENGINEER which orders minor changes in the Work in accordance with paragraph 9.5 but which does not involve a change in the Contract Price or the Contract Times.
- 1.18 *General Requirements* -- Sections of Division 1 of the Specifications.

1.19 *Hazardous Waste* -- The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 9603) as amended from time to time.

1.20 *Laws and Regulations: Laws or Regulations* -- Any and all applicable laws, rules, regulations, ordinances, codes and orders of any and all governmental bodies, agencies, authorities or courts having jurisdiction.

1.21 *Liens* -- Liens, charges, security interests or encumbrances upon real or personal property.

1.22 *Notice of Award* -- The written notice to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the conditions precedent enumerated therein, within the time specified, OWNER will sign and deliver the Agreement.

1.23 *Notice to Proceed* -- A written notice to CONTRACTOR fixing the date on which the Contract Time will commence to run and on which CONTRACTOR shall start to perform CONTRACTOR's obligations under the Contract Documents.

1.24 *OWNER* -- The public body or authority, corporation, association, firm or person with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be provided.

1.25 *Partial Utilization* -- Use by OWNER of a finished part of the Work for the purpose for which it is intended (or a related purpose) before reaching Substantial Completion for all the Work.

1.26 *Petroleum* -- Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline and kerosene and oil mixed with other non-Hazardous Wastes and crude oils.

1.27 *PCBs* -- Shall mean Polychlorinated Biphenyls.

1.28 *Project* -- The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

1.29 *Radioactive Material* -- Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, (42 USC Section 2011 et seq.) as amended from time to time.

1.30 *Resident Project Representative* -- The authorized representative of ENGINEER who may be assigned to the site or any part thereof.

1.31 *Samples* -- Physical examples of materials, equipment or workmanship that are representative of some portion of the

Work and which establish the standards by which such portion of the Work will be judged.

1.32 *Shop Drawings* -- All drawings, diagrams, illustrations, schedules and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.

1.33 *Specifications* -- Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

1.34 *Specifications Special Conditions* -- The part of the Contract Documents if used, that amends or supplements the Specifications.

1.35 *Subcontractor* -- An individual, firm or corporation having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the site.

1.36 *Substantial Completion* -- The Work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER as evidenced by ENGINEER's definitive certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it is intended; or if no such certificate is issued, when the Work is complete and ready for final payment as evidence by ENGINEER's written recommendation of final payment in accordance with paragraph 14.13. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

1.37 *Supplementary Conditions* -- The part of the Contract Documents which amends or supplements these General Conditions.

1.38 *Supplier* -- A manufacturer, fabricator, supplier, distributor, materialman or vendor having a direct contract with CONTRACTOR or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by CONTRACTOR or any Subcontractor.

1.39 *Underground Facilities* -- All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephones or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

1.40 *Unit Price Work* -- Work to be paid for on the basis of unit prices.

1.41 *Work* -- The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials and equipment into the construction and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

1.42 *Work Change Directive* -- A written directive to CONTRACTOR, issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by ENGINEER, ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed as provided in paragraph 4.2 or 4.3 or to emergencies under paragraph 6.23. A Work Change Directive will not change the Contract Price or the Contract Times, but is evidence that the parties expect that the change directed or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times as provided in paragraph 10.2.

1.43 *Written Amendment* -- A written amendment of the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

## ARTICLE 2 - PRELIMINARY MATTERS

### *Delivery of Bonds:*

2.1 When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish in accordance with paragraph 5.1.

### *Copies of Documents:*

2.2 OWNER shall furnish to CONTRACTOR up to ten copies (unless otherwise specified in the Supplementary Conditions) of the Contract Documents as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

### *Commencement of Contract Times; Notice to Proceed:*

2.3 The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement, or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within thirty days after the Effective Date of the Agreement. In no event will owner have any obligations or duties to CONTRACTOR under the Agreement until Contract Times commence to run.

### *Starting the Work:*

2.4 CONTRACTOR shall start to perform the Work on the date when the Contract Times commence to run, but no

Work shall be done at the site prior to the date on which the Contract Times commence to run.

### *Before Starting Construction:*

2.5 Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error, ambiguity or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error, ambiguity or discrepancy in the Contract Documents, unless CONTRACTOR knew or should have known thereof.

2.6 Within ten days after the Effective Date of the Agreement (unless otherwise specified in Division 1 - General Requirements), CONTRACTOR shall submit to ENGINEER for review:

2.6.1 a preliminary progress schedule indicating the times (number of days or dates) for starting and completing the various stages of the Work, including any principal events (milestones) specified in the Contract Documents;

2.6.2 a preliminary schedule of Shop Drawings and Sample submittals which will list each required submittal and the times for submitting, reviewing and processing such submittal;

2.6.3 a preliminary schedule of values for all of the Work which will include quantities and prices of items aggregating the Contract Price and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction.

2.7 Before any Work at the site is started, CONTRACTOR and OWNER shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which CONTRACTOR and OWNER respectively are required to purchase and maintain in accordance with paragraphs 5.4, 5.6 and 5.7.

### *Preconstruction Conference:*

2.8 Within twenty days after the Contract Times start to run, but before any Work at the site is started, a conference attended by CONTRACTOR, ENGINEER and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in paragraph 2.6, procedures for handling Shop Drawings and other submittals, processing Applications for Payments, and maintaining required records.

*Finalizing Schedules:*

2.9 Unless otherwise provided in the Supplementary Conditions, at least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, ENGINEER and others as appropriate will be held to finalize the schedules submitted in accordance with paragraph 2.6. CONTRACTOR shall have an additional ten days to make corrections and adjustments and to complete and submit the finalized schedules. No progress payment shall be made to CONTRACTOR until the finalized schedules are submitted to and acceptable to the ENGINEER as provided below. The finalized progress schedule will be as indicated in the Specifications and will be acceptable to ENGINEER as providing an orderly progression of the Work to completion within any specified milestone completion Times and the Contract Times, but such acceptance will neither impose on ENGINEER responsibility for the sequencing scheduling or progress of the Work nor relieve CONTRACTOR from full responsibility therefore. CONTRACTOR's finalized schedule of Shop Drawings and Sample submissions will be acceptable to ENGINEER as providing a workable arrangement for reviewing and processing the submittals. The CONTRACTOR's finalized schedule of values will be acceptable to ENGINEER as to form and substance.

### ARTICLE 3 -- CONTRACT DOCUMENTS; INTENT, AMENDING, REUSE

*Intent:*

3.1 The Contract Documents comprise the entire agreement between OWNER and CONTRACTOR concerning the Work. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.

3.2 It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be furnished and performed whether or not specifically called for. When words or phrases which have a well-known technical or construction industry or trade meaning are used to describe Work, materials or equipment such words or phrases shall be interpreted in accordance with that meaning. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in paragraph 9.4.

#### 3.3 *Reference to Standards and Specifications of Technical Societies; Reporting and Resolving Discrepancies:*

3.3.1 Reference to standards, specifications, manuals or codes of any technical society, organization or association,

or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard, specification, manual, code or Laws or Regulations in effect at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

3.3.2 If, during the performance of the Work, CONTRACTOR discovers any conflict, error, ambiguity or discrepancy between the Contract Documents and any provision of any such Law or Regulation applicable to the performance of the Work or of any such standard, specification, manual or code or of any instruction of any Supplier referred to in paragraph 6.5, CONTRACTOR shall report it to ENGINEER in writing at once, and, CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as authorized by paragraph 6.23) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in paragraphs 3.5 or 3.6; provided, however, that CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity or discrepancy unless CONTRACTOR knew or should have known thereof.

3.3.3 Except as otherwise specifically stated in the Contract Documents or as may be provided by amendment or supplement thereto issued by one of the methods indicated in paragraph 3.5 or 3.6, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity or discrepancy between the provisions of the Contract Documents and:

3.3.3.1 the provisions of any such standard, specification, manual, code or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

3.3.3.2 the provisions of any such Laws or Regulations applicable to the performance of the Work (unless such an interpretation of compliance with the provisions of the Contract Documents would result in violation of such Law or Regulation).

No provisions of any such standard, specification, manual, code or instruction shall be effective to change the duties and responsibilities of OWNER, CONTRACTOR or ENGINEER or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to OWNER, ENGINEER or any of ENGINEER's Consultants, agents or employees any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of paragraph 9.13 or any other provision of the Contract Documents.

3.4 Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved", or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper" or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review or judgement of ENGINEER as to the Work, it is intended that such requirement, direction, review or judgement will be solely to evaluate, in general, the completed Work for compliance with the information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as indicated by and reflected in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.13 or any other provision of the Contract Documents. Where "provide" is used in the Specifications or Drawings, it shall be understood to mean, "provide complete in place", that is, furnish and install.

*Amending and Supplementing Contract Documents:*

3.5 The Contract Documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

- 3.5.1 a formal Written Amendment,
- 3.5.2 a Change Order (pursuant to paragraph 10.4), or
- 3.5.3 a Work Change Directive (pursuant to paragraph 10.1).

3.6 In addition, the requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, in one or more of the following ways:

- 3.6.1 a Field Order (pursuant to paragraph 9.5),
- 3.6.2 ENGINEER's approval of a Shop Drawing or sample (pursuant to paragraphs 6.26 and 6.27), or
- 3.6.3 ENGINEER's written interpretation or clarification (pursuant to paragraph 9.4).
- 3.6.4 Any variations and deviation in the Work arising from any of the methods set forth in Paragraph 3.6 will not authorize any amendment to the Contract Price or Contract Times. The sole method to amend the Contract Price or Contract Times is pursuant to Paragraph 3.5.

*Reuse of Documents:*

3.7 CONTRACTOR, and any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with OWNER (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or

copies of any thereof) prepared by or bearing the seal of ENGINEER, or ENGINEER's Consultant; and (ii) shall not reuse any of such Drawings, Specifications, other documents or copies or extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaption by ENGINEER.

**ARTICLE 4 -- AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS**

*Availability of Lands:*

4.1 OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of CONTRACTOR. Upon reasonable written request, OWNER shall furnish CONTRACTOR with a correct statement of record legal title and legal description of the lands upon which the Work is to be performed and OWNER's interest therein as necessary for giving notice of or filing a mechanic's lien against such lands in accordance with applicable Laws and Regulations. OWNER shall identify any encumbrances or restrictions not of general application but specifically related to use of lands so furnished with which CONTRACTOR will have to comply in performing the Work. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by OWNER, unless otherwise provided in the Contract Documents. If CONTRACTOR and OWNER are unable to agree on entitlement to or the amount or extent of any adjustments in the Contract Price or the Contract Times as a result of any delay in OWNER's furnishing these lands, right-of-way or easements, CONTRACTOR may make a claim therefor as provided in Articles 11 and 12. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

*4.2 Subsurface and Physical Conditions:*

4.2.1 Reports and Drawings: Reference is made to the Supplementary Conditions for identification of:

4.2.1.1 Subsurface Conditions at the Site: Those reports of explorations and tests of subsurface conditions at the site that have been utilized by ENGINEER in preparation of the Contract Documents; and

4.2.1.2 Physical Conditions: Those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) that have been utilized by the ENGINEER in preparing the Contract Documents.

4.2.2 Limited Reliance by CONTRACTOR Authorized; Technical Data: CONTRACTOR may rely upon the accuracy of the technical data contained in such reports and drawings, but such reports and drawings are not Contract Documents. Except for such reliance on technical data, CONTRACTOR may not rely upon and shall make no claim against OWNER, ENGINEER or any of the

## ENGINEER's Consultants with respect to:

4.2.2.1 the completeness of such reports and drawings for CONTRACTOR's purposes,

4.2.2.2 nontechnical data, interpretations, opinions and information contained in such reports or otherwise relating to subsurface conditions at the site, or

4.2.2.3 nontechnical data, interpretations, opinions and information shown or indicated in such drawings or otherwise relating to such structures.

4.2.3 Reports of Differing Subsurface or Physical Conditions: If any subsurface or latent physical condition at the site that is uncovered or revealed (i) differs materially from that shown or indicated in the Contract Documents, or (ii) is of an unusual nature, which differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents, or (iii) is of such a nature as to require a change in the Contract Documents, or (iv) is of such a nature as to establish that any technical data on which CONTRACTOR is entitled to rely as provided in paragraphs 4.2.1 and 4.2.2 is materially inaccurate, then CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as permitted by paragraph 6.23), notify OWNER and ENGINEER in writing about such condition.

4.2.4 ENGINEER's Review: ENGINEER will promptly review the pertinent conditions, determine the necessity of OWNER's obtaining additional explorations or tests with respect thereto and advise OWNER in writing (with a copy to CONTRACTOR) of ENGINEER's findings and conclusions.

4.2.5 Possible Contract Documents Change: If ENGINEER concludes that a change in the Contract Documents is required as a result of a condition described in paragraph 4.2.3, a Work Change Directive or a Change Order will be issued as provided in Article 10 to reflect and document the consequences of such change.

4.2.6 Possible Price and Time Adjustments: If a condition described in paragraph 4.2.3 causes an increase or decrease in the Contract Price or Contract Times, an equitable adjustment in the Contract Price (subject to the provisions of paragraphs 9.10 and 11.9 with respect to Unit Price Work) or an equitable adjustment of the Contract Times, or any combination thereof, will be allowed, to the extent that such condition has caused an increase or decrease in CONTRACTOR's cost of, or time required for performance of the Work, whether or not the Contract Documents are changed pursuant to paragraph 4.2.5, provided that:

4.2.6.1 such subsurface or physical condition was unknown to and could not reasonably have been anticipated by CONTRACTOR, and

4.2.6.2 such subsurface or physical condition meets the criteria established in paragraph 4.2.3, and

4.2.6.3 CONTRACTOR has timely given the written notice required by paragraph 4.2.3, and

4.2.6.4 CONTRACTOR has complied with the requirements of Article 6 of the Agreement.

If OWNER and CONTRACTOR are unable to agree on entitlement to or as to the amount or length of any such equitable adjustment in the Contract Price or Contract Times, a claim may be made therefor as provided in Articles 11 and 12. However, OWNER, ENGINEER and ENGINEER's Consultants shall not be liable to CONTRACTOR for any costs, losses or damages sustained by CONTRACTOR on or in connection with any other project or anticipated project or that otherwise do not increase CONTRACTOR's cost of the Work.

## 4.3 Physical Conditions -- Underground Facilities:

4.3.1 Shown or Indicated: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based on information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

4.3.1.1 OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and

4.3.1.2 The cost of all of the following will be included in the Contract Price and CONTRACTOR shall have full responsibility for: (i) reviewing and checking all such information and data, (ii) locating all Underground Facilities shown or indicated in the Contract Documents, (iii) coordination of the Work with the owners of such Underground Facilities during construction, and (iv) the safety and protection of all such Underground Facilities as provided in paragraph 6.20 and repairing any damage thereto resulting from the Work.

4.3.2 Not Shown or Indicated: If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents, CONTRACTOR shall promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by paragraph 6.23), identify the owner of such Underground Facility and give



written notice thereof to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequence of the existence of the Underground Facility. If ENGINEER concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued as provided in Article 10 to reflect and document such consequences. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility as provided in paragraph 6.20. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, to the extent that they are attributable to the existence of any Underground Facility that was not shown or indicated in the Contract Documents and that CONTRACTOR did not know of and could not reasonably have been expected to be aware of or to have anticipated. If OWNER and CONTRACTOR are unable to agree on entitlement to or the amount or length of any such adjustment in Contract Times or Contract Price, CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.

However, OWNER, ENGINEER and ENGINEER's Consultants shall not be liable to CONTRACTOR for any costs, losses or damages sustained by CONTRACTOR on or in connection with any other project or anticipated project or that otherwise do not increase CONTRACTOR's cost of the Work.

*Reference Points:*

4.4 OWNER shall provide engineering surveys to establish reference points for construction which in ENGINEER's judgement are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work, shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points by professionally qualified personnel.

*4.5 Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Material:*

4.5.1 OWNER shall be responsible for any Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Material uncovered or revealed at the site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work and which may present a substantial danger to persons or property exposed thereto in connection with the Work at the site. OWNER shall not be responsible for any such materials brought onto the job site by CONTRACTOR, Subcontractors, Suppliers or anyone else for whom CONTRACTOR is responsible.

4.5.2 CONTRACTOR shall immediately (i) stop all Work in connection with such hazardous condition and in any area affected thereby (except in an emergency as required by paragraph 6.23) and (ii) notify OWNER and ENGINEER (and thereafter confirm such notice in writing). OWNER shall promptly consult with ENGINEER concerning the necessity for OWNER to retain a qualified expert to evaluate such hazardous condition or take corrective action, if any. CONTRACTOR shall not be required to resume Work in connection with such hazardous condition or in any such affected area until after OWNER has obtained any required permits related thereto and delivered to CONTRACTOR special-written notice (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (ii) specifying any special conditions under which such Work may be resumed safely. If OWNER and CONTRACTOR cannot agree as to entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Times as a result of such Work stoppage or such special conditions under which Work is agreed by CONTRACTOR to be resumed, either party may make a claim therefor as provided in Articles 11 and 12.

4.5.3 If after receipt of such special written notice CONTRACTOR does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then OWNER may order such portion of the Work that is in connection with such hazardous condition or in such affected area to be deleted from the Work. If OWNER and CONTRACTOR cannot agree to entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a claim therefor as provided in Articles 11 and 12. OWNER may have such deleted portion of the Work performed by OWNER's own forces or others in accordance with Article 7.

4.5.4 To the fullest extent permitted by Laws and Regulations OWNER shall indemnify and hold harmless CONTRACTOR and ENGINEER and their respective officers, directors, consultants, Subcontractors, agents and employees from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration or other dispute resolution costs) arising out of or resulting from such hazardous condition, provided that (a) any such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, and (b) nothing in this subparagraph 4.5.4 shall obligate OWNER to indemnify any person or entity from and against the consequences of that person's or entity's own negligence.

4.5.5 The provisions of paragraphs 4.2 and 4.3 are not intended to apply to Asbestos, PCB's, Petroleum, Hazardous

Waste or Radioactive Material uncovered or revealed at the site.

4.5.6 In accordance with the intent of the Federal Occupational Safety and Health Administration (OSHA) Standard Section 29CFR-1910.12, Hazard Communication with effective date of May 25, 1986, as it may be amended from time to time, the OWNER hereby notifies the CONTRACTOR Work is to be performed on company property where the CONTRACTOR's employees may be exposed to hazardous materials existing on the premises.

Chemicals known to be used or stored by the OWNER and required to be disclosed by said OSHA Standard Section 29CFR-1910.12 are listed in the Supplementary Conditions.

OWNER, CONTRACTOR and any Subcontractors will each provide or make available to the others: (a) any written hazard communication program required to be maintained with respect to the site and any material safety data sheet and other hazard communication information required to be provided in accordance with applicable Laws and applicable Regulations, or (b) in the event that applicable Laws and Regulations do not require the provision or exchange of such hazard communications, CONTRACTOR and any Subcontractors shall, nevertheless, provide or make available to OWNER and any other employers at the site a written hazard communication program, material safety data sheets and other hazard communication information of the type and consistent with the intent of said OSHA Standard Section 29CFR-1910.12 and acceptable to OWNER and ENGINEER. CONTRACTOR shall be responsible for coordinating any such required exchange of documents or information between or among OWNER, and any other employers at the site, or any of them. CONTRACTOR shall include the provisions of this paragraph 4.5.6 in any subcontract for any part of the Work at the site.

## ARTICLE 5 -- BONDS AND INSURANCE

### *Performance and Other Bonds:*

5.1 CONTRACTOR shall furnish a Performance Bond, and a Labor and Material Payment Bond, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as otherwise provided by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary Conditions. All Bonds shall be in the forms prescribed by the Contract Documents, except as otherwise provided by Laws or Regulations, and be executed by such sureties having a rating of "A" by the most recent Best's Key Rating Guide, and as are named in the current list of "Companies Holding Certificates of

Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

5.2 If the surety on any Bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraphs 5.1, CONTRACTOR shall within ten days thereafter substitute another Bond and surety, both of which must be acceptable to OWNER.

### 5.3 Licensed Sureties and Insurers; Certificates of Insurance:

5.3.1 All Bonds and insurance required by the Contract Documents to be purchased and maintained by OWNER or CONTRACTOR shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.3.2 CONTRACTOR shall deliver to OWNER, with copies to each additional insured indicated in the Supplementary Conditions, including ENGINEER, certificates of insurance (and other evidence of insurance requested by OWNER or any other additional insured) which CONTRACTOR is required to purchase and maintain in accordance with paragraph 5.4. OWNER shall deliver to CONTRACTOR certificates of insurance (and other evidence of insurance requested by CONTRACTOR or any other additional insured) which OWNER is required to purchase and maintain in accordance with paragraphs 5.6 and 5.7 hereof.

### *CONTRACTOR's Liability Insurance:*

5.4 CONTRACTOR shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and furnished and as will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance and furnishing of the Work and CONTRACTOR's other obligations under the Contract Documents, whether it is to be performed or furnished by CONTRACTOR, by any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for whose acts any of them may be liable:

5.4.1 claims under workers' compensation, disability benefits and other similar employee benefit acts;

5.4.2 claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;

5.4.3 claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;

5.4.4 claims for damages insured by customary personal injury liability coverage which are sustained (i) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (ii) by any other person for any other reason;

5.4.5 claims for damages, other than to the Work itself because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

5.4.6 claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

The policies of insurance so required by this paragraph 5.4 to be purchased and maintained shall:

5.4.7 with respect to insurance required by paragraphs 5.4.3 through 5.4.6 inclusive, include as additional insureds OWNER and ENGINEER (subject to any customary exclusion in respect of professional liability) and any other persons or entities indicated in the Supplementary Conditions, all of whom shall be listed by name as additional insureds, and include coverage for the respective officers and employees of all such additional insureds;

5.4.8 include the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Law and Regulation, whichever is greater;

5.4.9 include completed operations insurance;

5.4.10 include contractual liability insurance covering CONTRACTOR's indemnity obligations under paragraphs 6.16, 6.31 and 6.32;

5.4.11 contain a provision or endorsement that the coverage afforded will not be cancelled, materially changed or renewal refused until at least 30 days prior written notice has been given to OWNER, ENGINEER and each other additional insured indicated in the Supplementary Conditions to whom a certificate of insurance had been issued (and the certificates of insurance furnished by the CONTRACTOR pursuant to paragraph 5.3.2 will so provide);

5.4.12 remain in effect at least until final payment and at all times thereafter when CONTRACTOR may be correcting, removing or replacing defective Work in accordance with paragraph 13.12; and

5.4.13 with respect to completed operations insurance and any other insurance coverage written on a claims-made

basis, remain in effect for at least two years after final payment (and CONTRACTOR shall furnish OWNER and any other additional insured indicated in the Supplementary Conditions to whom a certificate of insurance has been issued evidence satisfactory to OWNER and any such additional insured of continuation of such insurance at final payment and one year thereafter).

*OWNER's Liability Insurance:*

5.5 OWNER shall be responsible for purchasing and maintaining OWNER's own liability insurance and, at OWNER's option, may purchase and maintain such insurance as will protect OWNER against claims which may arise from operations under the Contract Documents.

*Builders Risk Property Insurance:*

5.6 Unless otherwise provided in the Supplementary Conditions, OWNER shall purchase and maintain "builders risk" property insurance upon the Work at the site in the amount of the full replacement cost there (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws or Regulations). This insurance shall:

5.6.1 include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultant, and any other persons or entities indicated in the Supplementary Conditions, all of whom shall be listed as insureds or additional insureds;

5.6.2 be written on a Builder's Risk "all-risk" policy form, shall at least include insurance for physical loss and damage, and shall insure against the peril of fire and extended coverage, theft, vandalism and malicious mischief, earthquake, temporary buildings, falsework, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations and water damage, and such other perils as may be provided in the Supplementary Conditions;

5.6.3 include damages, losses and expenses arising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers, architects, attorneys and other professionals);

5.6.4 cover materials and equipment stored on or off the site or in transit prior to being incorporated in the Work where such materials and equipment are included in an approved Application for Payment; and

5.6.5 be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR and ENGINEER, with thirty days written notice to each other additional insured to whom a certificate of insurance has been issued.

5.7 OWNER shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the OWNER, CONTRACTOR

TOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other insureds as may be indicated in the Supplementary Conditions, all of whom shall be listed by name as insureds or additional insureds.

5.8 All the policies of insurance (or the certificates or other evidence thereof) required to be purchased and maintained by OWNER in accordance with paragraphs 5.6 and 5.7 will contain a provision or endorsement that the coverage afforded will not be cancelled or materially changed or renewal refused until at least thirty days prior written notice has been given to CONTRACTOR, and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with paragraph 5.11.

5.9 OWNER shall not be responsible for purchasing and maintaining any property insurance to protect the interests of CONTRACTOR, Subcontractors or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by the CONTRACTOR, Subcontractors or others suffering any such loss and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

5.10 If CONTRACTOR requests in writing that other special insurance be included in the property insurance policy, OWNER shall, if possible, include such insurance, and the cost thereof will be charged to CONTRACTOR by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the site, OWNER shall in writing advise CONTRACTOR whether or not such other insurance has been procured by OWNER.

*Waiver of Rights:*

5.11 OWNER and CONTRACTOR intend that all policies provided in response to paragraphs 5.6 and 5.7 will protect all of the parties listed as insureds or additional insureds in such policies and provide primary coverage for all losses and damages covered by perils insured thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the parties so listed. Accordingly, OWNER and CONTRACTOR waive all rights against each other for all losses and damages caused by any of the perils covered by such policies and any other property insurance applicable to the Work to the extent of insurance proceeds received under all such policies; and, in addition, waive all such rights against Subcontractors and all other parties so listed, and also against ENGINEER and ENGINEER's Consultants, for losses and damages so caused. None of the above waivers shall extend to the rights that any of the parties so listed may have to the proceeds of insurance held by OWNER as trustee or otherwise payable under any policy so issued.

*Receipt and Application of Proceeds:*

5.12 Any insured loss under the policies of insurance re-

quired by paragraphs 5.6 and 5.7 will be adjusted with OWNER and made payable to OWNER as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.13. OWNER shall deposit in a separate account any money so received, and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached the damaged Work shall be repaired or replaced, the monies so received applied on account thereof and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.

5.13 OWNER as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within fifteen days after the occurrence of loss to OWNER's exercise of this power. If such objection is made, OWNER as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, OWNER as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, OWNER as fiduciary shall give bond for the proper performance of such duties.

*Acceptance of Insurance:*

5.14 If OWNER has any objection to the coverage afforded by or other provisions of the Bonds or Insurance required to be purchased and maintained by CONTRACTOR in accordance with paragraphs 5.1, 5.2, 5.3 and 5.4 and any applicable provisions of the Supplementary Conditions on the basis of their not complying with the Contract Documents, OWNER shall notify CONTRACTOR in writing thereof within ten days of the date of delivery of such certificates (or other evidence requested) in accordance with paragraph 2.7. If CONTRACTOR has any objection to the coverage afforded by or other provisions of the policies of insurance required to be purchased and maintained by OWNER in accordance with paragraphs 5.6 and 5.7 and any applicable provisions of the Supplementary Conditions on the basis of their not complying with the Contract Documents, CONTRACTOR shall notify OWNER in writing thereof within ten days of the date of delivery of such certificates (or other evidence requested) in accordance with paragraph 2.7. OWNER and CONTRACTOR shall each provide to the other such additional information in respect of insurance provided by each as the other may reasonably request.

*Partial Utilization -- Property Insurance:*

5.15 If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, such use or occupancy may be accomplished in accordance with paragraph 14.10; provided that no such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof and in writing effected the changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be cancelled or permitted to lapse on account

of any such partial use or occupancy.

## ARTICLE 6 -- CONTRACTOR'S RESPONSIBILITIES

### *Supervision and Superintendence:*

6.1 CONTRACTOR shall supervise, inspect and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of others in the design or specification of a specific means, method, technique, sequence or procedure of construction which is indicated in and expressly required by the Contract Documents. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

6.2 CONTRACTOR shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The OWNER shall have the right to reject or demand replacement of such superintendent at any time, with or without cause, solely at the OWNER's discretion, based upon objective or subjective reasons, which reasons the OWNER may, but is not required to, disclose to the CONTRACTOR. The superintendent will be CONTRACTOR's representative at the site and shall have authority to act on behalf of CONTRACTOR. All communications given to the superintendent shall be as binding as if given to CONTRACTOR.

### *Labor, Materials and Equipment:*

6.3 CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the site. Except as otherwise required for the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without OWNER's written consent given after prior written notice to ENGINEER.

6.4 Unless otherwise specified in the General Requirements, CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.

6.5 All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of OWNER. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable Supplier, except as otherwise provided in Contract Documents.

### *Progress Schedule:*

6.6 CONTRACTOR shall adhere to the finalized progress schedule established in accordance with paragraph 2.9, as it may be adjusted from time to time in accordance with the Contract Documents. CONTRACTOR shall submit to the ENGINEER for acceptance (to the extent indicated in paragraph 2.9) adjustments in the finalized progress schedule to reflect the impact thereon of new developments. Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

### *Substitutes and "Or-Equal" Items:*

6.7 Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, no like, equivalent, or "or equal" item or substitution is permitted.

### 6.8 Concerning Subcontractors, Suppliers and Others:

6.8.1 CONTRACTOR shall not employ any Subcontractor, Supplier or other person or organization (including those acceptable to OWNER and ENGINEER as indicated in paragraph 6.8.2) whether initially or as a substitute, against whom OWNER or ENGINEER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier or other person or organization to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

6.8.2 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers or other persons or organizations (including those who are to furnish the principal items of materials and equipment) to be submitted to OWNER in advance of the specified date prior to the Effective Date of the Agreement for acceptance by OWNER and ENGINEER and if CONTRACTOR has submitted a list thereof in accordance with the Supplementary Conditions, OWNER's or ENGINEER's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the bidding documents or the Contract Documents) of any such Subcontractor, Supplier or other person or organization so identified may be revoked on the basis of

reasonable objection after due investigation, in which case CONTRACTOR shall submit an acceptable substitute. The Contract Price or Contract Times will be adjusted by the difference in the cost or time occasioned by such substitution and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by OWNER or ENGINEER of any such Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of OWNER or ENGINEER to reject defective Work.

#### 6.9 CONTRACTOR Responsible for Subcontractors:

6.9.1 CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers, and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR, just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier or other person or organization any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Contractor, Supplier, or other person or organization except as may otherwise be required by Laws or Regulations.

6.9.2 CONTRACTOR shall be fully responsible for scheduling and coordinating the Work of Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR. CONTRACTOR shall require any Subcontractor, Suppliers or other persons and organizations performing or furnishing any of the Work to communicate with the ENGINEER through CONTRACTOR.

6.10 The divisions and sections of the Specifications and the identification of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

6.11 All Work performed for CONTRACTOR by a Subcontractor or Supplier will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in paragraph 5.6 or 5.7, the agreement between the CONTRACTOR and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against OWNER, CONTRACTOR, ENGINEER, ENGINEER's Consultants and all other additional insureds for all losses and damages caused by any of the perils covered by such policies and any other property insurance applicable to the Work. If the in-

surers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, CONTRACTOR will obtain the same.

#### Patent Fees and Royalties:

6.12 CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER or ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by OWNER in the Contract Documents. CONTRACTOR shall indemnify and hold harmless and defend OWNER and ENGINEER and ENGINEER's Consultants and anyone directly or indirectly employed by any of them from and against all claims, damages, losses and expenses (including but not limited to fees of engineers, architects, attorneys, and other professionals, and court and arbitration costs) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product or device not specified in the Contract Documents.

#### Permits:

6.13 Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of Bids, or if there are no Bids, on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto such as plant investment fees.

#### 6.14 Laws and Regulations:

6.14.1 CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations.

6.14.2 If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, CONTRACTOR shall bear all costs arising therefrom; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with such Laws and

Regulations, but this shall not relieve CONTRACTOR of CONTRACTOR's obligations under paragraph 3.3.2.

*Taxes:*

6.15 Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall pay all sales, consumer, use and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

*Use of Premises:*

6.16 CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workers to the site and land and areas identified in and permitted by the Contract Documents and other land and areas permitted by Laws and Regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any adjacent land or areas, resulting from the performance of the Work. Should any claim be made against OWNER or ENGINEER by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify, hold harmless and defend OWNER, ENGINEER and ENGINEER's Consultants and anyone directly or indirectly employed by any of them from and against all claims, damages, losses and expenses (including, but not limited to, fees of engineers, architects, attorneys and other professionals and court and arbitration or other dispute resolution costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any such other party against OWNER, ENGINEER or ENGINEER's Consultant to the extent caused by or based upon CONTRACTOR's performance of the Work.

6.17 During the progress of the Work, CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work CONTRACTOR shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by OWNER at Substantial Completion of the Work. CONTRACTOR shall restore to original condition all property not designated for alteration by the Contract Documents.

6.18 CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

*Record Documents:*

6.19 CONTRACTOR shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Change Directives, Field Orders and written interpretations and clarifications (issued pursuant to paragraph 9.4) in good order and annotated to show all changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work, these record documents, Samples and Shop Drawings will be delivered to ENGINEER for OWNER.

*Safety and Protection:*

6.20 CONTRACTOR shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

6.20.1 all persons on the Work who may be affected by the Work;

6.20.2 all the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and

6.20.3 other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Facilities not designed for removal, relocation or replacement in the course of construction.

CONTRACTOR shall comply with all applicable Laws and Regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property referred to in paragraph 6.20.2 or 6.20.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER or ENGINEER or ENGINEER's Consultant or anyone employed by any of them or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR or any Subcontractor, Supplier or other person or organization directly or indirectly employed by any of them). CONTRACTOR's duties and responsibilities for safety and the protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRAC-



TOR in accordance with paragraph 14.13 that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.21 **Safety Representative:** CONTRACTOR shall designate an experienced safety representative at the site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.22 In performing the Work, CONTRACTOR shall take all measures to prevent the release, spillage or improper disposal of any hazardous substance or construction or waste materials which may contaminate the OWNER's or adjacent properties or the environment or substantially endanger human health. The transportation, handling, storage and use of gasoline, oils, paints, residual cleaning solvents and other hazardous substances or contaminating materials by CONTRACTOR or any Subcontractor shall be in such a manner to prevent release, spillage or improper disposal. Should any such hazardous substances or contaminating materials be released, spilled or improperly disposed of by the CONTRACTOR or any Subcontractors, the CONTRACTOR shall immediately notify the OWNER and ENGINEER, notify any applicable environmental agency as required by Laws and Regulations, and immediately remedy or remove such substances or materials, and clean and restore the affected areas to a safe condition and to the satisfaction of the OWNER and any applicable environmental agency. The CONTRACTOR shall pay all costs for the remedy or removal of contaminate materials and the proper disposal of them at an approved and permitted site and the restoration of the affected areas. The CONTRACTOR shall also be responsible for the payments of and shall indemnify, hold harmless and defend the OWNER, ENGINEER and ENGINEER's Consultant from all penalties, fines and damage claims resulting from the release, spillage or improper disposal by CONTRACTOR or any Subcontractor of any such hazardous substances or contaminating material.

*Emergencies:*

6.23 In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, CONTRACTOR, without special instruction or authorization from ENGINEER or OWNER, is obligated to act to prevent threatened damage, injury or loss. CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If ENGINEER determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Work Change Directive or Change Order will be issued to document the consequences of the changes or variations.

*Shop Drawings and Samples:*

6.24 CONTRACTOR shall submit:

6.24.1 Shop Drawings to ENGINEER for review and approval in accordance with the accepted schedule of Shop

Drawings and Sample submittals (see paragraph 2.9). All submittals will be identified as ENGINEER may require and in the number of copies specified in the General Requirements. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to show ENGINEER the materials and equipment CONTRACTOR proposes to provide and to enable ENGINEER to review the information for the limited purposes required by paragraph 6.26.

6.24.2 Samples to ENGINEER for review and approval in accordance with said accepted schedule of Shop Drawings and Sample submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended and otherwise as ENGINEER may require to enable ENGINEER to review the submittal for the limited purposes required by paragraph 6.26. The numbers of each Sample to be submitted will be as specified in the Specifications.

6.25 *Verification and Notice of Variations:*

6.25.1 Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified (i) all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar information with respect thereto, (ii) all materials with respect to intended use, fabrication, shipping, handling, storage, assembly and installation pertaining to the performance of the Work, and (iii) all information relative to CONTRACTOR's sole responsibilities in respect of means, methods, techniques, sequences and procedures of construction and safety precautions and programs incident thereto. CONTRACTOR shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

6.25.2 Each submittal will bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

6.25.3 At the time of each submission, CONTRACTOR shall give ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to ENGINEER for review and approval of each such variation.

6.26 ENGINEER will review and approve Shop Drawings and Samples in accordance with the final schedule of Shop Drawings and Sample submittals accepted by ENGINEER as



required by paragraph 2.9. ENGINEER's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. ENGINEER's review and approval will not extend to means, methods, techniques, sequences or procedures of construction (except where a specific means, method, technique, sequence or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. CONTRACTOR shall make corrections required by ENGINEER, and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

6.27 ENGINEER's review and approval of Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of submission as required by paragraph 6.25.3 and ENGINEER has given written approval of each such variation by a specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.25.1.

6.28 Where a Shop Drawing or Sample is required by the Contract Documents or the final schedule of Shop Drawings and Sample submissions accepted by ENGINEER as required by paragraph 2.9, any related Work performed prior to ENGINEER's review and approval of the pertinent submittal will be at the sole expense and responsibility of CONTRACTOR.

*Continuing the Work:*

6.29 CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.5 or as CONTRACTOR and OWNER may otherwise agree in writing.

6.30 CONTRACTOR's General Warranty and Guarantee

6.30.1 CONTRACTOR warrants and guarantees to OWNER, ENGINEER and ENGINEER's Consultants that all Work will be in accordance with the Contract Documents and will not be *defective*.

6.30.2 CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute and unconditional. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CON-

TRACTOR's obligation to perform the Work in accordance with the Contract Documents:

6.30.2.1 observations by ENGINEER;

6.30.2.2 recommendation of any progress or final payment by ENGINEER;

6.30.2.3 the issuance of a certificate of Substantial Completion or any payment by OWNER to CONTRACTOR under the Contract Documents;

6.30.2.4 any use or occupancy of the Work or any part thereof by OWNER;

6.30.2.5 any act or acceptance by OWNER or any failure to do so;

6.30.2.6 any review and approval of a Shop Drawing or Sample submittal, or the issuance of a notice of acceptability by ENGINEER pursuant to paragraph 14.13; or

6.30.2.7 any inspection, test or approval by others; or

6.30.2.8 any correction of *defective* Work by OWNER.

6.31 *Indemnification;*

6.31.1 To the fullest extent permitted by Laws and Regulations CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultant and the affiliated companies, consultants, agents, officers, directors and employees of each and any of them from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration or other dispute resolution costs) arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense (a) is attributable to bodily injury, personal injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom and (b) is caused in whole or in part by any negligent act or omission of CONTRACTOR, any Subcontractor, any Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not caused in part by any negligence or omission of a person or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such person or entity.

6.31.2 In any and all claims against OWNER, ENGINEER, ENGINEER's Consultant or the affiliated companies, consultants, agents, officers, directors, or employees of each or any of them by any employee (or the survivor or personal representative of such employee) of CONTRACTOR, any Subcontractor, any Supplier, any

person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.31 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or any such Subcontractor, Supplier or other person or organization under workers' compensation acts, disability benefit acts or other employee benefit acts.

6.31.3 If any provisions of paragraphs 6.31 or 6.32 in respect of indemnification is prohibited or unenforceable by applicable law, then said paragraphs 6.31 and 6.32, as applicable, shall be reformed and amended so that the parties indemnified hereunder are provided with the fullest extent of indemnification as is permitted under applicable law and the remainder of the Contract Documents shall remain in full force and effect and not be invalidated.

#### 6.32 *Survival of Obligations:*

All representations, indemnifications, warranties and guarantees made in, required by, or given in accordance with the Contract Documents will survive final payment, completion and acceptance of the Work and termination or completion of the Agreement.

### ARTICLE 7 -- OTHER WORK

#### *Related Work at Site:*

7.1 OWNER may perform other work related to the Project at the site by OWNER's own forces, or let other direct contracts therefor which shall contain General Conditions similar to these, or have other Work performed by utility owners. If the fact that such other Work is to be performed was not noted in the Contract Documents, then (i) written notice thereof will be given to CONTRACTOR prior to starting any such other Work and (ii) CONTRACTOR may make a claim therefor as provided in Articles 11 and 12 if CONTRACTOR believes that such performance will involve additional expense to CONTRACTOR or requires additional time and the parties are unable to agree as to the amount or extent thereof.

7.2 CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (and OWNER, if OWNER is performing the additional Work with OWNER's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work and shall properly connect and coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and

the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

7.3 If the proper execution or results of any part of CONTRACTOR's Work depends upon work performed by others under this Article 7, CONTRACTOR shall inspect such other work and promptly report to ENGINEER in writing any delays, defects or deficiencies in such work that render it unavailable or unsuitable for the proper execution and results of CONTRACTOR's Work. CONTRACTOR's failure so to report will constitute an acceptance of the other work as fit and proper for integration with CONTRACTOR's Work except for latent or nonapparent defects and deficiencies in such other work.

#### *Coordination:*

7.4 If OWNER contracts with others for the performance of other work on the Project at the site, the following will be set forth in Supplementary Conditions:

7.4.1 the person, firm or corporation who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified;

7.4.2 the specific matters to be covered by such authority and responsibility will be itemized; and

7.4.3 the extent of such authority and responsibilities will be provided. Unless otherwise provided in the Supplementary Conditions, OWNER shall have sole authority and responsibility in respect of such coordination.

### ARTICLE 8 -- OWNER'S RESPONSIBILITIES

8.1 Except as otherwise provided in these General Conditions, OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.2 In case of termination of the employment of ENGINEER's Consultant, OWNER may appoint a replacement whose status under the Contract Documents shall be that of the former ENGINEER's Consultant.

8.3 OWNER shall furnish the data required of OWNER under the Contract Documents promptly and shall make payments to CONTRACTOR promptly after they are due as provided in paragraphs 14.4 and 14.13.

8.4 OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.1 and 4.4. Paragraph 4.2 refers to OWNER identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions at the site and drawings of

physical conditions in or relating to existing structures which have been utilized by ENGINEER in preparing the Drawings and Specifications.

8.5 OWNER's responsibilities in respect of purchasing and maintaining liability and property insurance are set forth in paragraphs 5.5 through 5.10.

8.6 OWNER is obligated to execute Change Orders as indicated in paragraph 10.4.

8.7 OWNER's responsibility in respect of certain inspections, tests and approvals is set forth in paragraph 13.4.

8.8 In connection with OWNER's right to stop Work or suspend Work, see paragraphs 13.10 and 15.1. Paragraph 15.2 deals with OWNER's right to terminate services of CONTRACTOR under certain circumstances.

8.9 The OWNER shall not supervise, direct or have control or authority over, nor be responsible for, CONTRACTOR's means, methods, techniques, sequences or procedures of construction or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the furnishing or performance of the Work. OWNER will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.

8.10 OWNER's responsibility in respect of undisclosed Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Material uncovered or revealed at the site is set forth in paragraph 4.5.

## ARTICLE 9 -- ENGINEER'S STATUS

### 9.1 OWNER's Representative:

9.1.1 ENGINEER will be OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER's representative during construction are set forth in the Contract Documents and shall not be extended without written consent of OWNER and ENGINEER.

9.1.2 The assignment of any authority, duties or responsibilities to ENGINEER under the Contract Documents, or any undertaking, exercise or performance thereof by ENGINEER, is intended to be for the sole and exclusive benefit of OWNER and not for the benefit of CONTRACTOR, Subcontractor, Supplier or any other person or organization.

### Visits to Site:

9.2 Subject to the limitations of authority and responsibilities indicated in paragraph 9.13, ENGINEER will make visits to the site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to

observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of CONTRACTOR's executed Work. Based on information obtained during such visits and observations, ENGINEER will endeavor for the benefit of OWNER to determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. ENGINEER's efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and on-site observations, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defective Work. ENGINEER will not supervise, direct or have control over any of CONTRACTOR's Work during such visits or as a result of such observations of CONTRACTOR's Work.

### Project Representative:

9.3 If OWNER and ENGINEER agree, ENGINEER will furnish a Resident Project Representative to assist ENGINEER in providing more continuous observation of the Work. The duties, responsibilities and limitations of authority of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions. If OWNER designates another agent to represent OWNER at the site who is not ENGINEER's agent or employee, the duties, responsibilities and limitations of authority of such other person will be as provided in the Supplementary Conditions.

### Clarifications and Interpretations:

9.4 ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as ENGINEER may determine necessary which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. If CONTRACTOR or OWNER believes that a written clarification or interpretation justifies an adjustment in the Contract Price or an adjustment, if any, of the Contract Times and the parties are unable to agree to the amount or extent thereof, CONTRACTOR or OWNER may make a claim therefor as provided in Article 11 or Article 12. All requests from CONTRACTOR for clarification or interpretation shall be submitted to ENGINEER in writing.

### Authorized Variations in Work:

9.5 ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the complete project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on OWNER and also on CONTRACTOR who shall perform the Work involved promptly. If CONTRACTOR or OWNER believes

that a Field Order justifies an adjustment in the Contract Price or an extension of the Contract Times and the parties are unable to agree as to the amount or extent thereof, CONTRACTOR or OWNER may make a claim therefor as provided in Article 11 or 12.

*Rejecting Defective Work:*

9.6 ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be defective or that ENGINEER believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. ENGINEER will also have authority to require special inspection or testing of the Work as provided in paragraph 13.9, whether or not the Work is fabricated, installed or completed.

*Shop Drawings, Change Orders and Payments:*

9.7 In connection with ENGINEER's authority as to Shop Drawings and Samples, see paragraphs 6.24 through 6.28 inclusive.

9.8 In connection with ENGINEER's authority as to Change Orders, see Articles 10, 11 and 12.

9.9 In connection with ENGINEER's authority as to Applications for Payment, see Article 14.

*Determinations for Unit Prices:*

9.10 ENGINEER will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR. ENGINEER will review with CONTRACTOR ENGINEER's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Appeal in accordance with paragraph 9.12 will not be subject to procedures of paragraph 9.11.

*Decisions on Disputes:*

9.11 Claims, disputes and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work and claims under Articles 11 and 12 in respect of changes in the Contract Price or Contract Times will be referred initially to ENGINEER in writing with a request for a formal decision in accordance with this paragraph. Written notice of each such claim, dispute and other matter will be delivered by the claimant to ENGINEER and the other party to the Agreement promptly (but in no event later than thirty days) after the start of the occurrence or event giving rise thereto, and written supporting data will be submitted to ENGINEER and the other party within sixty days after the start of such occurrence or event unless ENGINEER allows an additional period of time for the submission of additional or more accurate data in support of such claim, dispute or other matter. The opposing party shall submit any response to ENGINEER and the

claimant within thirty days after receipt of the claimant's last submittal (unless ENGINEER allows additional time). ENGINEER will render a formal decision in writing within a reasonable time after receipt of the opposing party's submittal, if any, in accordance with this paragraph.

9.12 ENGINEER's written decisions pursuant to paragraphs 9.10 and 9.11 will be final and binding upon OWNER and CONTRACTOR, unless, within ten days after the date of any such decision, either OWNER or CONTRACTOR delivers to the other party to the Agreement and to ENGINEER written notice of intention to appeal ENGINEER's decision. Delivery of such written notice of intention to appeal a decision by ENGINEER pursuant to paragraphs 9.10 or 9.11 with respect to any claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.15) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such claim, dispute or other matter pursuant to Article 16. OWNER and CONTRACTOR agree to defer the exercise of their respective rights and remedies under Article 16 with respect to any claim, dispute or other matter that is the subject of such notice of intention to appeal until the making and acceptance of final payment, unless such deferral would irrevocably prejudice the rights of OWNER or CONTRACTOR. OWNER and CONTRACTOR intend to attempt to negotiate a settlement of any outstanding claims at or before the making and acceptance of final payment.

*9.13 Limitations on ENGINEER's Authority and Responsibilities*

9.13.1 Neither ENGINEER's responsibility or authority to act under this Article 9 or under any other provision of the Contract Documents or under any agreement between OWNER and ENGINEER or OWNER and ENGINEER's Consultant nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise or performance of any authority or responsibility by ENGINEER shall create, impose or give rise to any duty owed by ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety, or employee or agent for any of them.

9.13.2 ENGINEER will not supervise, direct, control or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the furnishing or performance of the Work. ENGINEER will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.

9.13.3 ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any

Suppliers, or of any other person or organization performing or furnishing any of the Work.

9.13.4 ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. When functioning as initial interpreter and judge, ENGINEER will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

#### ARTICLE 10 -- CHANGES IN THE WORK

10.1 Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions or revisions in the Work. Such additions, deletions or revisions will be authorized by a Written Amendment, a Change Order, or a Work Change Directive. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

10.2 If OWNER and CONTRACTOR are unable to agree as to the extent, if any, of an adjustment in the Contract Price or an adjustment of the Contract Times that should be allowed as a result of a Work Change Directive, a claim may be made therefor as provided in Article 11 and Article 12.

10.3 CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any Work performed that is not required by the Contract Documents as amended, modified and supplemented as provided in paragraphs 3.5 and 3.6, except in the case of an emergency as provided in paragraph 6.23 or in the case of uncovering Work as provided in paragraph 13.9.

10.4 OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by ENGINEER (or Written Amendments) covering:

10.4.1 changes in the Work which are (i) ordered by OWNER pursuant to paragraph 10.1, (ii) required because of acceptance of defective Work under paragraph 13.13 or correcting defective Work under paragraph 13.14, or (iii) agreed to by the parties;

10.4.2 changes in the Contract Price or Contract Times which are agreed to by the parties; and

10.4.3 changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 9.11;

provided that in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.29.

10.5 If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including but not limited to, Contract Price or Contract Times) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility, and the amount of each applicable Bond will be adjusted accordingly.

#### ARTICLE 11 -- CHANGE OF CONTRACT PRICE

11.1 The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by CONTRACTOR shall be at CONTRACTOR's expense without change in the Contract Price.

11.2 The Contract Price may only be changed by a Change Order or by a Written Amendment. Any claim for an adjustment in the Contract Price shall be based on written notice delivered by the party making the claim to the other party and to ENGINEER promptly (but in no event later than thirty days) after the start of the occurrence or event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within sixty days after such start of the occurrence or event (unless ENGINEER allows additional time for claimant to submit additional or more accurate data in support of the claim) and shall be accompanied by claimant's written statement that the amount claimed covers all known amounts (direct, indirect and consequential) to which the claimant is entitled as a result of said occurrence or event. All claims for adjustment in the Contract Price shall be determined by ENGINEER in accordance with paragraph 9.11 if OWNER and CONTRACTOR cannot otherwise agree on the amount involved. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance with this paragraph 11.2.

11.3 The value of any Work covered by a Change Order or of any claim for an adjustment in the Contract Price will be determined as follows:

11.3.1 where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of paragraphs 11.9.1 through 11.9.3 inclusive);

11.3.2 where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit). Such allowance shall not exceed a fee calculated in accordance with paragraph 11.6.2.

11.3.3 where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under paragraph 11.3.2, on the basis of the Cost of the Work (determined as provided in paragraphs 11.4 and 11.5) plus a CONTRACTOR's fee for overhead and

profit (determined as provided in paragraph 11.6).

*Cost of the Work:*

11.4 The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs itemized in paragraph 11.5.

11.4.1 Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by OWNER and CONTRACTOR. Such employees shall include without limitation superintendents, foremen and other personnel employed full-time at the site. Payroll costs for employees not employed full-time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work after regular working hours, on Saturday, Sunday or legal holidays, shall be included in the above to the extent authorized by OWNER.

11.4.2 Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and all returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

11.4.3 Payments made by CONTRACTOR to the Subcontractors for Work performed or furnished by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from subcontractors acceptable to OWNER and CONTRACTOR and shall deliver such bids to OWNER who will then determine, with the advice of ENGINEER, which bids, if any, will be accepted. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as CONTRACTOR's Cost of the Work and fee as provided in paragraphs 11.4, 11.5, 11.6 and 11.7. All Subcontractors shall be subject to the other provisions of the Contract Documents insofar as applicable.

11.4.4 Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys and accounts) employed for services specifically related to the work, only to the extent authorized and approved in writing by the ENGINEER.

11.4.5 Supplemental costs including the following:

11.4.5.1 The proportion of necessary transportation, travel, and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

11.4.5.2 Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost less market value of such items used but not consumed which remain the property of CONTRACTOR.

11.4.5.3 Rentals of all construction equipment and machinery and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advice of ENGINEER, and the costs of transportation, loading, unloading, installation, dismantling and removal thereof all in accordance with the terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

11.4.5.4 Sales, consumer, use or similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

11.4.5.5 Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

11.4.5.6 Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance and furnishing of the Work (except losses and damages within the deductible amounts of property insurance established by OWNER in accordance with paragraph 5.9), provided they have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's fee. If, however, any such loss or damage requires reconstruction and CONTRACTOR is placed in charge thereof, CONTRACTOR shall be paid for services a fee proportionate to that stated in paragraph 11.6.2.

11.4.5.7 The cost of utilities, fuel and sanitary facilities at the site.

11.4.5.8 Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, express delivery and similar petty cash items in connection

with the Work.

11.4.5.9 Cost of premiums for additional Bonds and insurance required because of changes in the Work.

11.5 The term Cost of the Work shall not include any of the following:

11.5.1 Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and sole proprietorships), general managers, project managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the site or in CONTRACTOR's principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.4.1 or specifically covered by paragraph 11.4.4 all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

11.5.2 Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.

11.5.3 Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

11.5.4 Cost of premiums for all Bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by subparagraph 11.4.5.9 above).

11.5.5 Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

11.5.6 Other overhead or general expense costs of any kind.

11.5.7 The costs of any item not specifically and expressly included in paragraph 11.4.

**CONTRACTOR's Fee:**

11.6 The CONTRACTOR's fee allowed to CONTRACTOR for overhead and profit shall be determined as follows:

11.6.1 a mutually acceptable fixed fee; or

11.6.2 if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

11.6.2.1 for costs incurred under paragraphs 11.4.1 and 11.4.2 the CONTRACTOR's Fee shall be fifteen percent;

11.6.2.2 for costs incurred under paragraph 11.4.3 the CONTRACTOR's fee shall be five percent;

11.6.2.3 where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of paragraphs 11.4.1, 11.4.2, 11.4.3 and 11.6.2 is that the Subcontractor who actually performs or furnishes the Work, at whatever tier, will be paid a fee of fifteen percent of the costs incurred by such Subcontractor under paragraphs 11.4.1 and 11.4.2 and that any higher tier Subcontractor and CONTRACTOR will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor, for example:

Cost of the Work Performed by Sub-Subcontractor	= \$10,000.00
Sub-Subcontractor's Fee (15 percent)	1,500.00
Total to Sub-Subcontractor	\$11,500.00
Subcontractor's Fee (5 percent)	575.00
Subtotal	\$12,075.00
CONTRACTOR's Fee (5 percent)	603.75
Total Change Order	= \$12,678.75

11.6.2.4 no fee shall be payable on the basis of costs itemized under paragraphs 11.4.4, 11.4.5 and 11.5;

11.6.2.5 the amount of credit to be allowed by CONTRACTOR or OWNER for any such change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in CONTRACTOR's fee by an amount equal to ten percent of the net decrease; and

11.6.2.6 when both additions and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with paragraphs 11.6.2.1 through 11.6.2.5 inclusive.

11.7 Whenever the cost of any Work is to be determined pursuant to paragraph 11.4 and 11.5, CONTRACTOR will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

**Cash Allowances:**

11.8 It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be done by such Subcontractors or Suppliers and for such sums within the limit of the allowances as may be acceptable to ENGINEER. CONTRACTOR agrees that:

11.8.1 The allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the site, and all applicable taxes; and

11.8.2 CONTRACTOR's costs for unloading and handling on the site, labor, installation costs, overhead, profit



and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances. No demand for additional payment on account of any of the foregoing will be valid.

Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

*Unit Price Work:*

11.9.1 Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the established unit prices for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER in accordance with paragraph 9.10.

11.9.2 Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item.

11.9.3 CONTRACTOR or OWNER may make a claim for an adjustment in the Contract Price in accordance with Article 11 if;

11.9.3.1 the quantity of any item of Unit Price Work performed by CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

11.9.3.2 there is no corresponding adjustment with respect to any other item of Work; and

11.9.3.3 if CONTRACTOR believes that CONTRACTOR has incurred additional expense as a result thereof or OWNER believes that OWNER is entitled to a decrease in Contract Price; and

11.9.3.4 the parties are unable to agree as to the amount of any such increase or decrease.

*Delays Beyond the Control of Both Parties:*

11.10 Neither OWNER nor CONTRACTOR shall be entitled to an increase or decrease in the Contract Price, nor to any other compensation or damages from the other as the result of delays beyond the control of both OWNER and CONTRACTOR, such as fires, floods, epidemics, abnormal weather conditions or acts of God.

ARTICLE 12 -- CHANGE OF CONTRACT TIMES

12.1 The Contract Times (or any applicable specified milestone completion date or time) may only be changed by a Change Order or a Written Amendment. Any claim for an adjustment of the Contract Times shall be based on written notice delivered by the party making the claim to the other party and to ENGINEER promptly (but in no event later than thirty days) after the start of the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered to the other party and the ENGINEER within sixty days after the start of such occurrence (unless ENGINEER allows an additional period of time to submit additional or more accurate data in support of the claim) and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Times shall be determined by ENGINEER in accordance with paragraph 9.11 if OWNER and CONTRACTOR cannot otherwise agree. No claim for an adjustment in the Contract Times will be valid if not submitted in accordance with the requirements of this paragraph 12.1.

12.2 All time limits stated in the Contract Documents are of the essence of the Agreement.

12.3 Where CONTRACTOR is prevented from completing the Work within the Contract Times (or any applicable specified milestone completion date or time), the Contract Times (or any applicable specified milestone completion date or time) will be extended in an amount equal to the time lost due to delays beyond the control of CONTRACTOR if a claim is made therefor as provided in paragraph 12.1. At OWNER's option, the Contract Times (or any applicable specified milestone completion date or time) will be extended for the entire Work or only that portion of the Work affected by the event giving rise to the claim. The CONTRACTOR will be notified in writing of the OWNER's decision in this matter. If OWNER elects to extend the Contract Times (or any applicable specified milestone completion date or time) for the affected portion of Work only, liquidated damages, if applicable, will be apportioned between affected Work and non-affected Work based on the value each portion represents as a percentage of the Contract Price. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions or acts of God. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

12.4 Where CONTRACTOR is prevented from completing the Work within the Contract Times (or any applicable specified milestone completion date or time), an extension of the Contract Times (or any applicable milestone completion



date or time) in an amount equal to the time lost due to delays beyond the control of both OWNER and CONTRACTOR shall be CONTRACTOR's sole and exclusive remedy for such delays. At OWNER's option, the Contract Times (or any applicable specified milestone completion date or time) will be extended for the entire Work or only that portion of the Work affected by the event giving rise to the claim. The CONTRACTOR will be notified in writing of the OWNER's decision in this matter. If OWNER elects to extend the Contract Times (or any applicable specified milestone completion date or time) for the affected portion of Work only, liquidated damages, if applicable, will be apportioned between affected Work and non-affected Work based on the value each portion represents as a percentage of the Contract Price. In no event shall OWNER or CONTRACTOR be liable to the other for damages arising out of or resulting from (i) delays caused by or within the control of the other, or (ii) delays beyond the control of both parties including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

**ARTICLE 13 -- TESTS AND INSPECTIONS;  
CORRECTION, REMOVAL OR ACCEPTANCE  
OF DEFECTIVE WORK**

13.1 Notice of Defects: Prompt notice of all *defective* Work of which OWNER and ENGINEER have actual knowledge will be given to CONTRACTOR. All *defective* Work may be rejected, corrected or accepted as provided in this Article 13.

**Access to Work:**

13.2 ENGINEER, ENGINEER's Consultants, other representatives and personnel of OWNER, independent testing laboratories and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's site safety procedures and progress so that they may comply therewith as applicable.

**Tests and Inspections:**

13.3 CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests, or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

13.4 OWNER shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

13.4.1 for inspections, tests or approvals covered by paragraph 13.5 below;

13.4.2 that costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.9 below shall be paid as provided in said paragraph 13.9; and

13.4.3 as otherwise specifically provided in the Contract Documents.

13.5 If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested or approved by an employee or other representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspection, tests or approvals, pay all costs in connection therewith, and furnish ENGINEER the required certificates of inspection, or approval. CONTRACTOR shall also be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests or approvals required for OWNER's or ENGINEER's acceptance of materials or equipment to be incorporated in the Work, or of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work.

13.6 If any Work (including the Work of others) that is to be inspected, tested or approved is covered by CONTRACTOR without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation. Such uncovering shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice.

13.7 Neither observations by ENGINEER nor inspections, tests or approvals by others shall relieve CONTRACTOR from CONTRACTOR's obligations to perform the Work in accordance with the Contract Documents.

**Uncovering Work:**

13.8 If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and replaced at CONTRACTOR's expense.

13.9 If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose or otherwise make available for observation, inspection or testing as ENGINEER may require, that portion of the Work in question furnishing all necessary labor, material and equipment. If it is found that such Work is *defective*, CONTRACTOR shall bear all direct, indirect and consequential costs and damages of such uncovering, exposure, observation, inspection and testing and of satisfactory replacement or reconstruction, (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration or other dispute resolution costs), and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefor as provided in Article 11. If, however, such Work is not found to be *defective*, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times (or any applicable specified milestone completion date), or both, directly attributable to such un-

covering, exposure, observation, inspection, testing, replacement and reconstruction; and, if the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a claim therefor as provided in Article 11 and 12.

*Owner May Stop the Work:*

13.10 If the Work is *defective*, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR or any other party.

*Correction or Removal of Defective Work:*

13.11 If required by ENGINEER, CONTRACTOR shall promptly, as directed, either correct all *defective* Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by ENGINEER, remove it from the site and replace it with Work that is not *defective*. CONTRACTOR shall bear all direct, indirect and consequential costs and damages of such correction or removal (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration or other dispute resolution costs) made necessary thereby.

*13.12 Correction Period:*

13.12.1 If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be *defective*, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions, (i) correct such *defective* Work, or, if it has been rejected by OWNER, remove it from the site and replace it with Work that is not *defective*, and (ii) satisfactorily correct or remove and replace any damage to other Work resulting therefrom. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the *defective* Work corrected or the rejected Work removed and replaced, and all direct, indirect and consequential costs and damages of such removal and replacement (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration or other dispute resolution costs) will be paid by CONTRACTOR.

13.12.2 In special circumstances where a particular item of equipment is placed in continuous service for the benefit of the OWNER before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

13.12.3 Where *defective* Work (and damage to other Work resulting therefrom) has been corrected, removed or replaced under this paragraph 13.12, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

*Acceptance of Defective Work:*

13.13 If, instead of requiring correction or removal and replacement of *defective* Work, OWNER (and, prior to ENGINEER's recommendation of final payment, also ENGINEER) prefers to accept it, OWNER may do so. CONTRACTOR shall bear all direct, indirect and consequential costs attributable to OWNER's evaluation of and determination to accept such *defective* Work (such costs to be approved by ENGINEER as to reasonableness and to include but not be limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration or other dispute resolution costs). If any such acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefor as provided in Article 11. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER.

*OWNER May Correct Defective Work:*

13.14 If CONTRACTOR fails within a reasonable time after written notice from ENGINEER to correct *defective* Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.11, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days' written notice to CONTRACTOR, correct and remedy any such deficiency. In exercising the rights and remedies under this paragraph OWNER shall proceed expeditiously. To the extent necessary to complete corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the site, take possession of all or part of the Work, and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the site and incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees, OWNER's other contractors and ENGINEER and ENGINEER's Consultant such access to the site as may be necessary to enable OWNER to exercise the rights and remedies under this paragraph. All direct, indirect and consequential costs and damages of OWNER in exercising such rights and remedies will be charged against CONTRACTOR, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall

be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefor as provided in Article 11. Such direct, indirect and consequential costs and damages will include but not be limited to fees and charges of engineers, architects, attorneys and other professionals, court and arbitration or other dispute resolution costs and all cost of repair and replacement of Work of others destroyed or damaged by correction, removal or replacement of CONTRACTOR's defective Work. CONTRACTOR shall not be allowed an extension of the Contract Time because of any delay in performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies hereunder.

#### ARTICLE 14 -- PAYMENTS TO CONTRACTOR AND COMPLETION

##### *Schedule of Values:*

14.1 The schedule of values established as provided in paragraph 2.9 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to ENGINEER. Progress payments on account of Unit Price Work will be based on the number of units completed.

##### *Application for Progress Payment:*

14.2 At least thirty days before the date established for each progress payment, CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is required on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice or other documentation warranting that OWNER has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect OWNER's interest therein, all of which will be satisfactory to OWNER. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

##### *CONTRACTOR's Warranty of Title:*

14.3 CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.

##### *Review of Applications for Progress Payment:*

14.4 ENGINEER will, within fifteen days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to

OWNER, or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application. Fifteen days after presentation of the Application for Payment to OWNER with ENGINEER's recommendation, the amount recommended will (subject to the provisions of the last sentence of paragraph 14.7) become due and when due will be paid by OWNER to CONTRACTOR.

14.5 ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER's on-site observations of the executed Work as an experienced and qualified engineer and on ENGINEER's review of the Application for Payment and the accompanying data and schedules that to the best of ENGINEER's knowledge, information and belief (i) the Work has progressed to the point indicated, and (ii) the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.10 and to any other qualifications stated in the recommendation), and (iii) the conditions precedent to CONTRACTOR's being entitled to such payment appear to have been fulfilled in so far as it is ENGINEER's responsibility to observe the Work. However, by recommending any such payment ENGINEER will not thereby be deemed to have represented that (i) exhaustive or continuous on-site inspections have been made to check the quality or the quantity of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents or (ii) there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or OWNER to withhold payment to CONTRACTOR.

14.6 ENGINEER's recommendation of any payment, including final payment shall not mean that ENGINEER is responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the furnishing or performance of Work, or for any failure of CONTRACTOR to perform or furnish Work in accordance with the Contract Documents.

14.7 ENGINEER may refuse to recommend the whole or any part of any payment if, in ENGINEER's opinion, it would be incorrect to make such representations to OWNER. ENGINEER may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

14.7.1 the Work is defective, or completed Work has been damaged requiring correction or replacement,

14.7.2 the Contract Price has been reduced by Written Amendment or Change Order,

14.7.3 OWNER has been required to correct *defective* Work or complete Work in accordance with paragraph 13.14, or

14.7.4 of ENGINEER's actual knowledge of the occurrence of any of the events enumerated in paragraphs 15.2.1 through 15.2.4 inclusive.

OWNER may refuse to make payment of the full amount recommended by ENGINEER because:

14.7.5 claims have been made against OWNER on account of CONTRACTOR's performance or furnishing of the Work,

14.7.6 Liens have been filed in connection with the Work,

14.7.7 there are other items entitling OWNER to a set-off against the amount recommended, or

14.7.8 OWNER has actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.7.1 through 14.7.3 or paragraphs 15.2.1 through 15.2.4 inclusive;

but OWNER must give CONTRACTOR immediate written notice (with a copy to ENGINEER) stating the reasons for such action.

*Substantial Completion:*

14.8 When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Within a reasonable time thereafter, OWNER, CONTRACTOR and ENGINEER shall make an inspection of the Work to determine the status of completion. If ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate during which to make written objection to ENGINEER as to any provisions of the certificate or attached tentative list. If, after considering such objections, ENGINEER concludes that the Work is not substantially complete, ENGINEER will within fourteen days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefor. If, after consideration of OWNER's objections, ENGINEER considers the Work substantially complete, ENGINEER will within said fourteen days execute and deliver to OWNER and CONTRACTOR a

definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as ENGINEER believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion, ENGINEER will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, heat, utilities, insurance and warranties and guarantees. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform ENGINEER prior to ENGINEER's issuing the definitive certificate of Substantial Completion, ENGINEER's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

14.9 OWNER shall have the right to exclude CONTRACTOR from the Work after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

*Partial Utilization:*

14.10 Use by OWNER at OWNER's option of any substantially completed part of the Work, which (i) has specifically been identified in the Contract Documents, or (ii) OWNER, ENGINEER and CONTRACTOR agree constitutes a separately functioning and useable part of the Work that can be used by OWNER for its intended purpose without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following:

14.10.1 OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and ENGINEER that said part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and ENGINEER in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, OWNER, CONTRACTOR and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, ENGINEER will notify OWNER and CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers that part of the Work to be substantially complete, the provisions of paragraphs 14.8 and 14.9 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

14.10.2 No occupancy or separate operation of part of the Work will be accomplished prior to compliance with the requirements of paragraph 5.15 in respect of property insurance.

*Final Inspection:*

14.11 Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will make a final inspection with OWNER and CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or *defective*. CONTRACTOR shall immediately take such measures as are necessary to remedy such deficiencies.

*Final Application for Payment:*

14.12 After CONTRACTOR has completed all such corrections to the satisfaction of ENGINEER and delivered in accordance with the Contract Documents all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance required by paragraph 5.4, certificates of inspection, marked-up record documents (as provided in paragraph 6.9) and other documents, CONTRACTOR may make application for final payment following the procedure for progress payments, except that the progress payment shall be clearly marked "Final Application for Payment." The final Application for payment shall be accompanied by (i) all documentation called for in the Contract Documents including but not limited to the evidence of insurance required by subparagraph 5.4.13, (ii) consent of the surety, if any, to final payment, and (iii) complete and legally effective releases or waivers (satisfactory to OWNER) of all Liens arising out of or filed in connection with the Work.

*Final Payment and Acceptance:*

14.13 If, on the basis of ENGINEER's observation of the Work during construction and final inspection, and ENGINEER's review of the final Application for Payment and accompanying documentation, all as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, ENGINEER will, within fifteen days after receipt of the final Application for Payment, indicate in writing ENGINEER's recommendation of payment and present the Application to OWNER for payment. At the same time ENGINEER will give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.15. Otherwise, ENGINEER will return the Application to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application. Thirty days after presentation to OWNER of the Application and accompanying documentation, in appropriate form and substance, and with ENGINEER's recommendation and notice of acceptability, the amount recommended by ENGINEER will become due and will be paid by OWNER to CONTRACTOR.

14.14 If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed and if ENGINEER

so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.1, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

*Waiver of Claims:*

14.15 The making and acceptance of final payment will constitute:

14.15.1 a waiver of all claims by OWNER against CONTRACTOR, except claims arising from unsettled Liens, from *defective* Work appearing after final inspection pursuant to paragraph 14.11 or from failure to comply with the Contract Documents or the terms of any special guarantees specified therein; however, it will not constitute a waiver by OWNER of any rights in respect of CONTRACTOR's continuing obligations under the Contract Documents; and

14.15.2 a waiver of all claims by CONTRACTOR against OWNER other than those previously made in writing and still unsettled.

## ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

*OWNER May Suspend Work:*

15.1 OWNER may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than ninety days by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any suspension if CONTRACTOR makes an approved claim therefor as provided in Articles 11 and 12.

*OWNER May Terminate:*

15.2 Upon the occurrence of any one or more of the following events:

15.2.1 if CONTRACTOR persistently fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.9 as revised from time to time);

15.2.2 if CONTRACTOR disregards or violates Laws or Regulations of any public body having jurisdiction or insurance requirements;

15.2.3 if CONTRACTOR disregards the authority of ENGINEER;

15.2.4 if CONTRACTOR violates in any substantial way any provisions of the Contract Documents;

15.2.5 if CONTRACTOR has numerous or serious violations of Laws and Regulations pertaining to worker protection or safety;

15.2.6 if CONTRACTOR makes the assignment for the benefit of creditors of any of the monies due CONTRACTOR under this Agreement;

15.2.7 if CONTRACTOR intentionally submits documentation that is false or misleading;

OWNER may, after giving CONTRACTOR (and the surety, if any,) seven days' written notice and to the extent permitted by Laws and Regulations, terminate the services of CONTRACTOR, exclude CONTRACTOR from the site and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct, indirect and consequential costs of completing the Work (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration or other dispute resolution costs) such excess will be paid to CONTRACTOR. If such costs exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such costs incurred by OWNER will be reviewed by ENGINEER as to their reasonableness and when so approved by ENGINEER incorporated in a Change Order, provided that when exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

15.3 Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.4 Upon seven days' written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy of OWNER, elect to terminate the Agreement. In such case, CONTRACTOR shall be paid (without duplication of any items):

15.4.1 for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

15.4.2 for expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

15.4.3 for amounts paid in settlement of terminated contracts with Subcontractors, Suppliers, and others (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration or other dispute resolution costs incurred in connection with termination of contracts with Subcontractors and Suppliers); and

15.4.4 for reasonable expenses directly attributable to termination.

CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss or any consequential damages arising out of such termination.

*CONTRACTOR May Stop Work or Terminate:*

15.5 If, through no act or fault of CONTRACTOR, the Work is suspended for a period of more than ninety days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within thirty days after it is submitted, or OWNER fails for thirty days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days written notice to OWNER and ENGINEER, and provided OWNER or ENGINEER do not remedy such suspension or failure within that time, terminate the Agreement and recover from OWNER payment on the same terms as provided in paragraph 15.4. In lieu of terminating the Agreement, and without prejudice to any other right or remedy, if ENGINEER has failed to act on an Application for Payment within thirty days after it is submitted, or OWNER has failed for thirty days to pay CONTRACTOR any sum finally determined to be due, CONTRACTOR may upon seven days' written notice to OWNER and ENGINEER stop the Work until payment of all amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 15.5 are not intended to preclude CONTRACTOR from making claim under Articles 11 and 12 for an increase in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to CONTRACTOR's stopping Work as permitted by this paragraph.

**ARTICLE 16 -- DISPUTE RESOLUTION**

Subject to the provisions of paragraph 9.10, 9.11, and 9.12, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

**ARTICLE 17 -- MISCELLANEOUS***Giving Notice:*

17.1 Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have

been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

*Computation of Time:*

17.2.1 When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.2.2 A calendar day of twenty-four hours measured from midnight to the next midnight will constitute a day.

*Notice of Claim:*

17.3 Should OWNER or CONTRACTOR suffer injury or damage to person or property because of any error, omission or act of the other party or of any of the other Party's employees or agents or others for whose acts the other party is legally liable, claim will be made in writing to the other party within a reasonable time of the first observance of such injury or damage. The provisions of this paragraph 17.3 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or repose.

*Cumulative Remedies:*

17.4 The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon CONTRACTOR by paragraph 6.30, 6.31, 6.32, 13.1, 13.12, 13.14, 14.3, and 15.2 and all of the rights and remedies available to OWNER and ENGINEER thereunder, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply.

## **SUPPLEMENTARY CONDITIONS TO THE STANDARD**

### **GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT**

These Supplementary Conditions amend or supplement the General Conditions of the Construction Contract (No. 12/93 – American Water System Standard General Conditions) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions will have the meanings indicated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings indicated below, which are applicable to both the singular and plural thereof.

#### **SC-1 DEFINITIONS**

1.36 The term SUBSTANTIAL COMPLETION is amended to mean the tank is cleaned, painted, cured, disinfected, and ready for service.

The term FINAL COMPLETION is amended to mean the tank is cleaned, painted, cured, disinfected, and ready for service and all site work, clean-up, disposal, etc. is completed.

#### **SC-2.2 COPIES OF DOCUMENTS**

Amend the first sentence of paragraph 2.2 of the General Conditions to read as follows:

A. ENGINEER shall furnish to CONTRACTOR up to three (3) copies of the Contract Documents as are reasonably necessary for the execution of the Work. Additional copies may be obtained from the ENGINEER for the cost of printing and delivery of the additional copies so obtained.

and as so amended paragraph 2.2 remains in effect.

#### **SC-2.3 COMMENCEMENT OF CONTRACT TIMES; NOTICE TO PROCEED**

Amend the last two sentences of paragraph 2.3 of the General Conditions to read as follows:

A. A Notice to Proceed may be given at any time after the Effective Date of the Agreement.

and as so amended paragraph 2.3 remains in effect.



### SC-3.3 RESOLVING DISCREPANCIES

Add the following language at the end of paragraph 3.3.3 of the General Conditions to read as follows:

3.3.3.3 In resolving conflicts, errors and discrepancies, the ENGINEER shall give precedence in the following order, except as may be otherwise specifically stated:

1. Agreement
2. Modifications
3. Addenda
4. Supplementary Conditions
5. General Conditions
6. Detailed Technical Specifications
7. Drawings
8. CONTRACTOR'S Bid Form
9. Figure Dimensions
10. Scale Dimensions

### SC-4.2 SUBSURFACE AND PHYSICAL CONDITIONS

In the preparation of Drawings and Specifications, ENGINEER has utilized:

4.2.1. The following report of exploration of conditions at the site of the Work:

- 4.2.1.2 A Summarized Tank Information Sheet will be made available for review and an evaluation report of the 400,000 gallon steel elevated water storage tank dated March 22 and June 8, 2006, with color photographs prepared by Tank Industry Consultants covering the evaluation of the tank is available for review in the office of the OWNER and in the office of the ENGINEER. The information contained in such sheets and reports is not considered technical in nature, rather the ENGINEER'S opinion of the condition of the site and structure. Therefore, CONTRACTOR is not entitled to rely on any information contained in such sheets and reports. Such information and reports are made available to BIDDER as a courtesy only.

It is further agreed and understood that the BIDDER or the CONTRACTOR will not use any information made available to him/her, or obtained by any examination made by him/her, in any manner as a basis or ground of claim or demand of any nature against the OWNER or ENGINEER arising from or by reason of any variance which may exist between the information offered and the actual materials and structures encountered during the construction work.

**SC-5.4.13 CONTRACTOR'S LIABILITY INSURANCE**

Add the following new paragraph immediately after paragraph 5.4.13:

- C. The limits of liability for the insurance required by paragraph 5.4 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

5.4.14. Workers' Compensation, and related coverages under paragraphs 5.4.1 and 5.4.2 of the General Conditions:

- |    |   |   |
|----|---|---|
| a. | State:                                    | Statutory   |
| b. | Applicable Federal (e.g. Longshoreman's): | Statutory   |
| c. | Employer's Liability                      | \$1,000,000 Bodily Injury by Disease –<br>Each Employee |
|    |   | \$1,000,000 Each Accident                               |
|    |   | \$1,000,000 Bodily Injury by Disease –<br>Policy Limit  |

Waiver of Subrogation in favor of the Company and its agents, officers, directors, and employees for recovery of damages to the extent these damages are covered by the policy.

5.4.15. Contractor's Liability Insurance under paragraphs 5.4.3 through 5.4.6 of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control Contractor:

- |    |   |                  |
|----|---|------------------|
| a. | General Aggregate: (Except Product-Completed Operations)  |                  |
|    | \$1,000,000   | Annual Aggregate |
| b. | Products-Completed Operations:  |                  |
|    | \$1,000,000   | Annual Aggregate |
| c. | Personal and Advertising Injury, with employment exclusion deleted:   |                  |
|    | \$1,000,000   | Annual Aggregate |
| d. | Each Occurrence (Bodily Injury and Property Damage):  |                  |
|    | \$1,000,000   | Each Occurrence  |
| e. | Property Damage liability insurance will provide Explosion, Collapse and Underground coverages where applicable |                  |
| f. | <u>Excess Liability:</u> (Umbrella Form)  |                  |
|    | 1) \$9,000,000  | Each Occurrence  |
|    | 2) \$9,000,000  | Annual Aggregate |

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5.4.16. Automobile Liability under paragraph 5.4.6 of the General Conditions:

- a. Combined Single Limit (CSL)  
Bodily Injury and Property Damage  
(Symbol 1,8 or 9): \$1,000,000

5.4.17. The Contractual Liability required by paragraph 5.4.4 of the General Conditions shall provide coverage for not less than the following amounts:

Bodily Injury:	
\$1,000,000	Each Occurrence
\$1,000,000	Annual Aggregate

Property Damage:	
\$1,000,000	Each Occurrence
\$1,000,000	Annual Aggregate

5.4.18 The following and each of their officers, agents, and employees must be endorsed as additional insured on all General Liability, Automobile Liability, and Excess Liability policies.

- a. Kentucky American Water; and  
b. Tank Industry Consultants

5.4.19. The Completed Operations Liability Insurance coverage required by SC-5.4 shall be provided for a period of at least one year after completion of the Project.

#### SC-6.4 LABOR, MATERIALS AND EQUIPMENT

Add the following sentence at the end of paragraph 6.4 of the General Conditions to read as follows:

CONTRACTOR shall be responsible for all material furnished by OWNER and shall replace at CONTRACTOR'S expense all such material damaged in handling.

#### SC-6.5 QUALITY AND INSTALLATION OF MATERIALS AND EQUIPMENT

Add the following sentences at the end of paragraph 6.5 of the General Conditions to read as follows:

In addition, all chemicals used during project construction, or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with the instructions of the applicable Supplier except as otherwise provided in the Contract Documents.

**SC-6.8 CONCERNING SUBCONTRACTORS, SUPPLIERS AND OTHERS**

Add the following sentences at the beginning of paragraph 6.8.1 of the General Conditions to read as follows:

- 6.8.1. Subcontracting of the cleaning and painting shall not be allowed. If a SUBCONTRACTOR is used, the name and address of the proposed SUBCONTRACTOR shall be stated in the **Bid Form**.

**SC-6.12 PATENT FEES AND ROYALTIES**

Delete the second sentence of paragraph 6.12 of the General Conditions in its entirety.

**SC-6.17 USE OF PREMISES**

Amend the second sentence of paragraph 6.17 of the General Conditions to read as follows:

- C. At the completion of the Work CONTRACTOR shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition or to the satisfaction of OWNER all property not designated for alteration by the Contract Documents before final payment will be issued.

and as so amended paragraph 6.17 remains in effect.

Add the following four (4) paragraphs immediately after paragraph 6.17 of the General Conditions to read as follows:

6.17.1 In addition to the cleaning up requirements set forth in the General Conditions, CONTRACTOR shall keep the working areas free at all times of tools, materials and equipment not essential to the progress of the work. Debris, waste materials, and rubbish shall be properly disposed of and not allowed to accumulate. If CONTRACTOR should fail to do this, OWNER will make necessary arrangements to effect the cleanup by others and will back charge the cost to CONTRACTOR. If such action becomes necessary on the part of and in the opinion of OWNER, OWNER will not be responsible for the inadvertent removal of material which CONTRACTOR would not have disposed of had CONTRACTOR effected the required cleanup.

6.17.2. Where material or debris has washed or flowed into or been placed in watercourses, ditches, gutters, drains, catch-basins, or elsewhere as result of CONTRACTOR'S operations, such material or debris shall be entirely removed and satisfactorily disposed of during progress of the Work, and the ditches, channels, drains, etc., kept in a clean and neat condition.

6.17.3. CONTRACTOR shall restore or replace; when and as directed, any public or private property damaged by his/her work, equipment, or employees to a condition at least equal

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to that existing immediately prior to the beginning of operations. Suitable materials, equipment, and methods shall be used for such restoration. Final payment for this Contract shall be withheld until all claims are resolved.

- 6.17.4. CONTRACTOR shall provide chemical toilet and wash-up facilities immediately adjacent to the tank. The facilities shall be kept clean, in sanitary working condition, and shall be free of offensive odors. Upon completion of the work, the facilities shall be removed from the site.

## SC-6.20 SAFETY AND PROTECTION

Amend the first sentence of the 2nd paragraph for section 6.20 of the General Conditions to read as follows:

- B. CONTRACTOR shall comply with all applicable Laws and Regulations (including, but not limited to all rules and regulations promulgated under OSHA and the State where the Work is to be performed) relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.

and as so amended paragraph 6.20 remains in effect.

## SC-6.31 INDEMNIFICATION

Add the following paragraphs immediately after paragraph 6.31.3 of the General Conditions to read as follows:

- 6.31.4. Limitation of Liability: The CONTRACTOR and all Subcontractors agree to limit the liability of the OWNER and ENGINEER, due to the ENGINEER'S professional negligent acts, errors, or omissions, such that the total aggregate liability of the OWNER and ENGINEER to those named shall not exceed fifty thousand dollars (\$50,000), or 5% of the contract award amount, whichever is greater.
- 6.31.5. The CONTRACTOR agrees to protect, defend, and save harmless the OWNER and ENGINEER against any demand for payment for the use of any patented material, process, article, or device that may enter into the manufacture, construction, or form a part of the work covered by this agreement; and the CONTRACTOR further agrees to indemnify and save harmless the OWNER and ENGINEER from suits or actions of every nature and description brought against them for, or on account of any injuries or damages received or sustained by any party or parties, by, or from the acts or omissions of the CONTRACTOR, his/her servants, or agents.

**SC-14.2 APPLICATIONS FOR PAYMENTS**

Add the following sentence to paragraph 14.2:

- 14.2. Payment for bonds, insurance, design, drawings, mobilization, containment of the cleaning and/or painting debris, and materials and equipment not incorporated into the Work shall not be allowed.

**SC-14.8 SUBSTANTIAL COMPLETION**

Amend the first sentence of paragraph 14.8 of the General Conditions to read as follows:

When CONTRACTOR considers the tank ready for its intended use (the structure is painted, the paint is cured, the structure is disinfected, and the structure is ready for service) CONTRACTOR shall notify OWNER and ENGINEER in writing that the tank is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion for the tank. Substantial completion date shall be considered when disinfection is accomplished. However if the laboratory test results are not satisfactory, then the additional days required to re-disinfect and purge the tank of bacteria or any VOC's shall be considered as calendar days until additional samples are submitted for laboratory testing. One tank of water for the disinfection shall be furnished by the OWNER at no charge to the CONTRACTOR. Additional water shall be furnished at current municipal water rates charged by the OWNER and shall be paid for by the CONTRACTOR.

and as so amended paragraph 14.8 remains in effect.

**END OF SUPPLEMENTARY CONDITIONS**

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# ACORD CERTIFICATE OF INSURANCE

ISSUE DATE (MM/DD/YY) - 07/23/12  
Page 166 of 332

**PRODUCER**  
Contractor Insurance Broker  
555 Water Street  
Charleston West, WV

Phone No.  
Fax No.

**INSURED**  
Construction Contractor | \$10MM, Vendor I,  
AJAX Electrical Contracting  
1 Main Street  
Charleston, WV

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

COMPANIES AFFORDING COVERAGE	
COMPANY LETTER	A XYZ Insurance Company
COMPANY LETTER	B One Two Three Insurance Company
COMPANY LETTER	C
COMPANY LETTER	D
COMPANY LETTER	E

**COVERAGES**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	<b>GENERAL LIABILITY</b> <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> OWNER'S & CONTRACTOR'S PROT. <input type="checkbox"/> <input type="checkbox"/>	GLSA260T331702	01/01/2006	12/31/2006	GENERAL AGGREGATE \$ 1,000,000 PRODUCTS-COMP/OP AGG. \$ 1,000,000 PERSONAL & ADV. INJURY \$ 1,000,000 EACH OCCURRENCE \$ 1,000,000 FIRE DAMAGE (ANY ONE FIRE) \$ 1,000,000 MED. EXPENSE (ANY ONE PERSON) \$ 5,000
A	<b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS <input type="checkbox"/> GARAGE LIABILITY	987654321	01/01/2006	12/31/2006	COMBINED SINGLE LIMIT \$ 1,000,000  BODILY INJURY (PER PERSON) \$  BODILY INJURY (PER ACCIDENT) \$  PROPERTY DAMAGE \$
B	<b>EXCESS LIABILITY</b> <input type="checkbox"/> UMBRELLA FORM <input checked="" type="checkbox"/> OTHER THAN UMBRELLA FORM	LOCX045	01/01/2006	12/31/2006	EACH OCCURRENCE \$ 9,000,000 AGGREGATE \$ 9,000,000
A	<b>WORKER'S COMPENSATION AND EMPLOYERS LIABILITY</b>	AEIOU	01/01/2006	12/31/2006	<input checked="" type="checkbox"/> STATUTORY LIMITS EACH ACCIDENT \$ 1,000,000 DISEASE-POLICY LIMIT \$ 1,000,000 DISEASE-EACH EMPLOYEE \$ 1,000,000
	OTHER				

**DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS**  
**Project Location:**  
 Certificate holder is included as additional Insured with respect to liability arising out of the named insured's operations performed on behalf of holder. Excess policy follows form for Employers Liability, General Liability and Auto Liability Policies without exception. Waiver of Subrogation endorsement must accompany certificate of insurance.

(Note: General Liability per occurrence limit and Auto policy per occurrence limit, combined with the Excess policies, must not be less than \$10,000,000.00 Combined Total Limit of Liability.)

CERTIFICATE HOLDER	CANCELLATION
American Water 800 W. Hersheypark Drive Hershey, PA 17033	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL XXXXXXXX TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.  AUTHORIZED REPRESENTATIVE <span style="float: right;">28</span>



# CLOG-RESISTANT ALUMINUM ROOF VENT 24 INCH DIAMETER

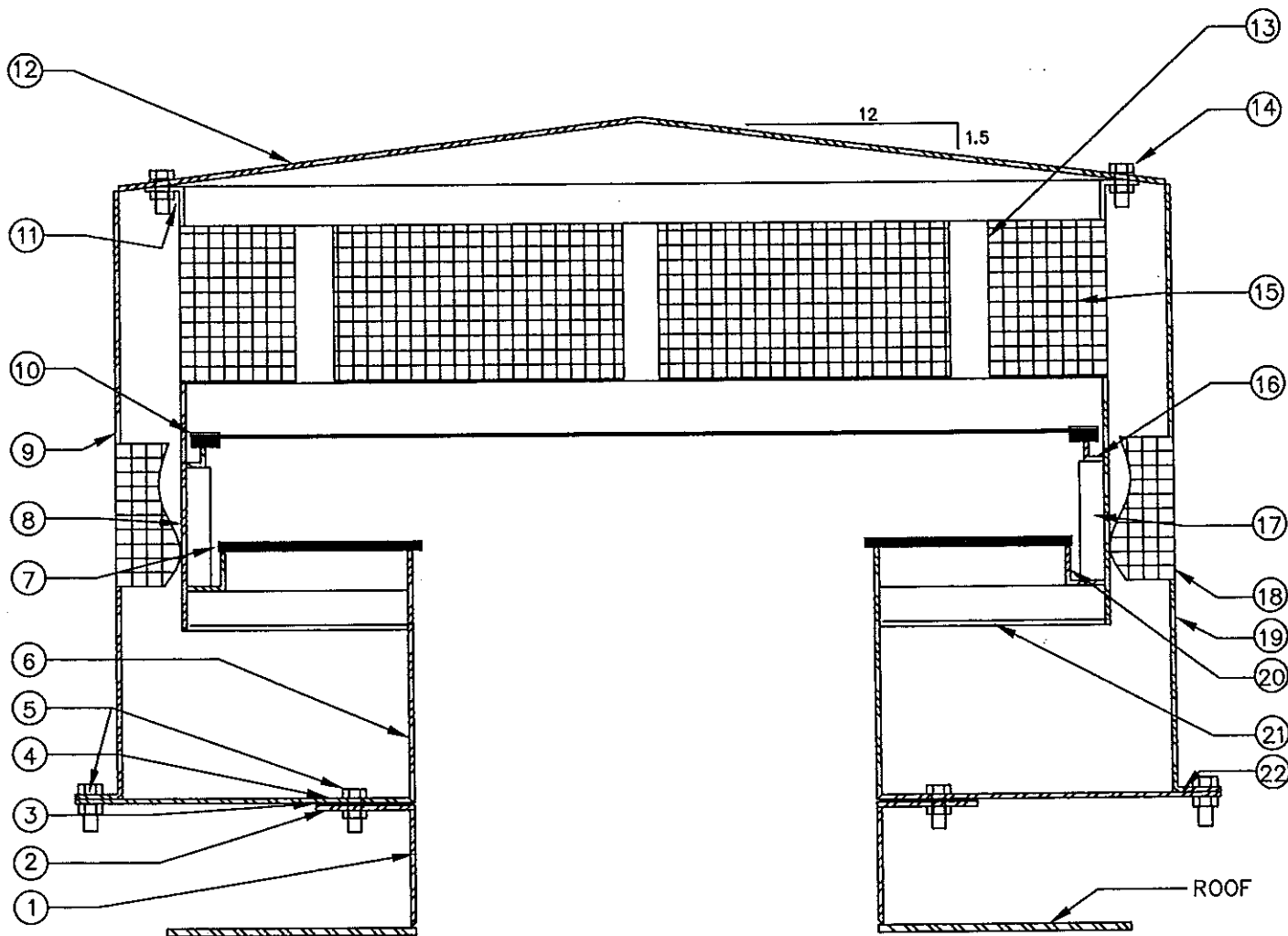


FIGURE - 1

NOTE: INSTALL VENT ASSEMBLY PLUMB  $\pm 1/8$  IN. IN 12 IN.

NOT TO SCALE

SHEET 1 OF 5

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400,000 GALLON STEEL ELEVATED WATER TANK  
"FAIRGROUNDS TANK"  
KENTUCKY AMERICAN WATER

DWG. NO. CRV  
10/11/06  
TIC 06.219.H310.12

24 IN. DIAMETER ALUMINUM VENT MATERIAL SPECIFICATION FOR FIG. 1

- 1 - Steel plate rolled to 24-1/2 in. O.D. X 6 in. high (min.) X 1/4 in. tk, must project 4 in. above roof (install plumb)
- 2 - Steel plate 34 in. O.D. X 1/4 in. X 24 in. I.D. (must be installed level)  
Bolt Circle: (8) 7/16 in. dia. holes @ 15-1/8 in. rad.
- 3 - Rubber gasket 34 in. O.D. X 3/8 in. X 24-1/4 in. I.D.  
Bolt Circle: (8) 7/16 in. dia. holes @ 15-1/8 in. rad.
- 4 - Aluminum plate 58 in. O.D. X 3/16 in. X 24 in. I.D. equipped w/ (4) openings covered by 3/4 in. X .125 in. flattened expanded aluminum, opening size .625 in. x 1.75 in. (Fig. 2)
- 5 - (8 inner, 20 outer) 304 S.S. bolts w/ H.H. nuts & (2) flat washers per bolt, 3/8 in. dia. X 1-1/2 in. long. Bolt Circles: (8) 7/16 in. dia. holes @ 15-1/8 in. rad. & (20) 7/16 in. dia. holes @ 28-1/4 in. rad.
- 6 - Aluminum plate rolled to 24 in. I.D. X 3/16 in. X 12-1/2 in. long (round one edge)
- 7 - Linear High Density Poly-Ethylene (HDPE) vacuum pallet 45 in. O.D. X 23 in. I.D. X 1/2 in. tk
- 8 - Aluminum plate rolled to 48 in. O.D. X 12-1/2 in. high X 1/8 in. tk
- 9 - Aluminum plate rolled to 54 in. O.D. X 12 in. high X 1/8 in. tk
- 10 - Pressure pallet, refer to Fig. 2
- 11 - Aluminum 2 in. X 2 in. X 3/16 in., angle rolled to 47-3/4 in. I.D. leg out w/ (4) evenly spaced 9/16 in. dia. holes (refer to Fig. 3)
- 12 - Aluminum cone roof plate 54 in. dia. X 1/8 in. tk (may substitute pressed plate or flanged and dished head)
- 13 - (6) Aluminum bar 2 in. X 3/16 in. X 8 in. long (refer to Fig. 5)
- 14 - (4) 304 S.S. bolts 1/2 in. dia. X 1-1/2 in. long, with (1) flat washer, (1) lock washer, and (1) nut per bolt (refer to Fig. 3) May substitute 1 in.  $\emptyset$  X 1/2 in. thick bar stock, drilled and tapped, and welded to angle for nut and lock washer.
- 15 - 3/4 in. X .125 in. flattened expanded aluminum (opening size .625 in. x 1.75 in.) formed to 48 in. I.D. X 11 in. high
- 16 - Aluminum angle 1 in. X 1 in. X 3/16 in. rolled to 45-3/4 in. I.D. leg out w/ (8) evenly spaced 3/16 in. dia. holes located midway on the horizontal leg
- 17 - (6) Aluminum bar 6 in. X 1-1/4 in. X 1/8 in.
- 18 - 3/4 in. X .125 in. flattened expanded aluminum (opening size .625 in. x 1.75 in.) formed to 54 in. I.D. X 9 in. high supported by (6) evenly spaced aluminum bars, 2 in. X 3/16 in. X 6 in. long
- 19 - Aluminum plate rolled to 54 in. O.D. X 13 in. high X 1/8 in. tk section of vertical shield
- 20 - Aluminum angle 2 in. X 2 in. X 3/16 in. rolled to 43-3/4 in. I.D. leg out w/ (8) evenly spaced 3/16 in. dia. holes located midway on the horizontal leg
- 21 - (6) Aluminum angle 2 in. X 2 in. X 3/16 in. X 11-5/8 in. long, oriented leg-down
- 22 - Aluminum plate 58 in. O.D. X 3/16 in. X 54 in. I.D. to provide 2 in. wide lip for bolting

Operating Instructions:

- 1) Annually inspect and clean out the vent interior.
- 2) More frequent inspection and cleaning may be required if unusually severe dust conditions exist.
- 3) Severe icing could cause freezing of the pallets rendering the pallets inoperative. More frequent inspections are required during freezing conditions. The vent and pallets should be thawed if necessary.
- 4) The pallets and interior surfaces of the vent should not be painted. If the exterior surfaces are to be painted, TIC recommends these surfaces be hand-roughened with sand paper and solvent washed prior to coating. A primer acceptable for this type of surface should be used.
- 5) The vacuum and pressure-relief pallets should be removed during cleaning and painting of the tank to prevent them from clogging. The Owner's representative should verify the proper re-installation of the pallets prior to placing the tank back into service.

Note: All steel items to be made from A36, or A283 Grades A, B, or C steel unless otherwise specified.

All aluminum items to be made from Grade 3003-H14 or H16 formable, unless otherwise specified.

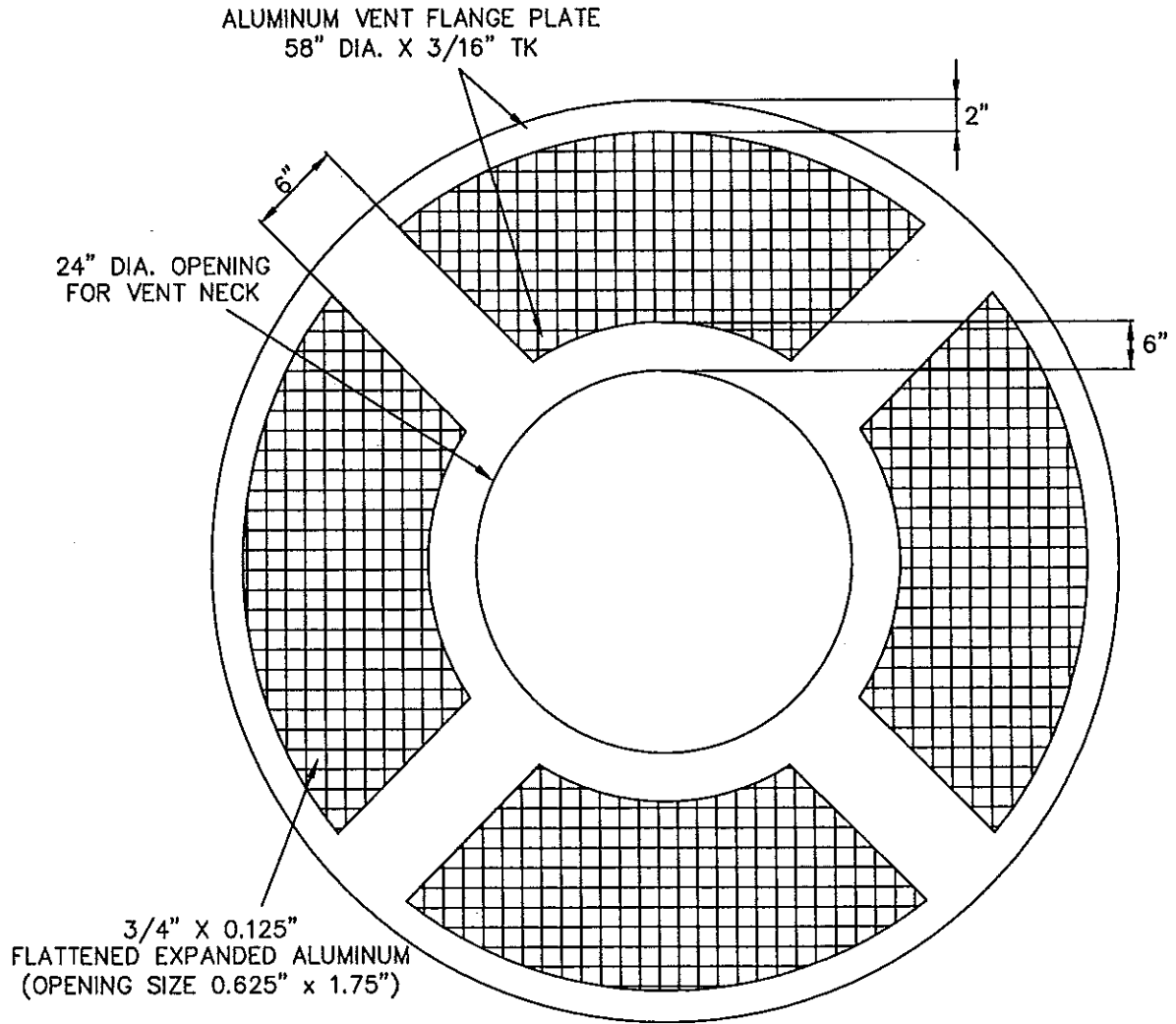
All dimensions to  $\pm$  1/8 in. tolerance except bolt hole diameters to  $\pm$  1/32 in. tolerance.

SHEET 2 OF 5

# CLOG-RESISTANT ALUMINUM ROOF VENT

## 24 INCH DIAMETER

### FIGURE - 2



# PRESSURE PALLET - 24 INCH DIAMETER VENT

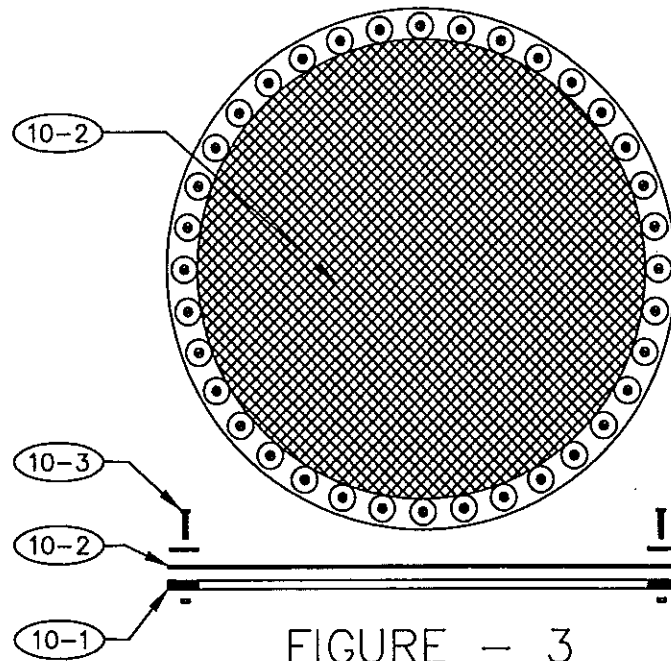


FIGURE - 3

- 10-1 - HDPE ring 47 in. O.D. X 43 in. I.D. X 1/2 in. tk  
 Bolt circle: (36) 1/4 in. dia. holes and evenly spaced @ rad. = 22-1/2 in.
- 10-2 - 16 X 16 type 316 stainless steel mesh 46 in. dia. (0.018 - 316 S.S. screen)  
 Bolt circle: (36) 1/4 in. dia. holes evenly spaced @ rad. = 22-1/2 in.
- 10-3 - (36) No. 12 pan head 316 S.S. machine screws w/ nuts and fender washers,  
 1-1/2 in. long

## VENT COVER CONNECTION

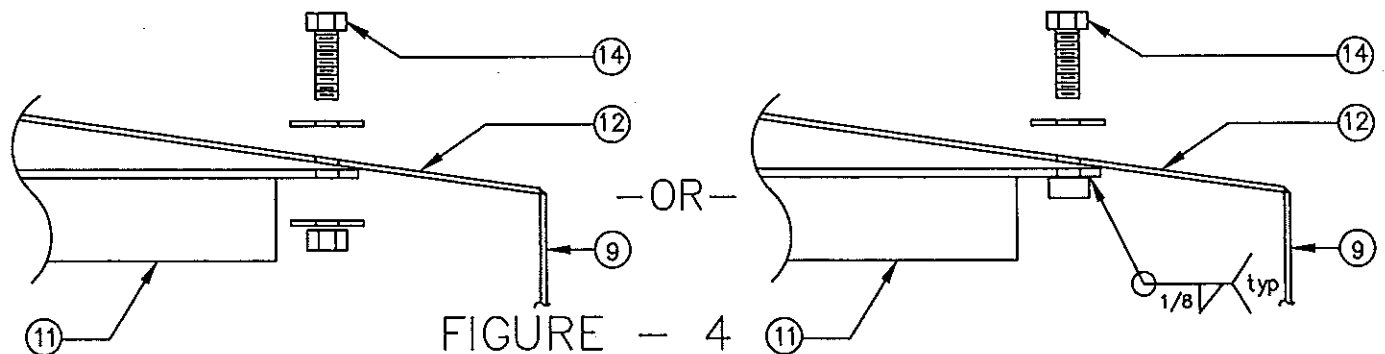


FIGURE - 4

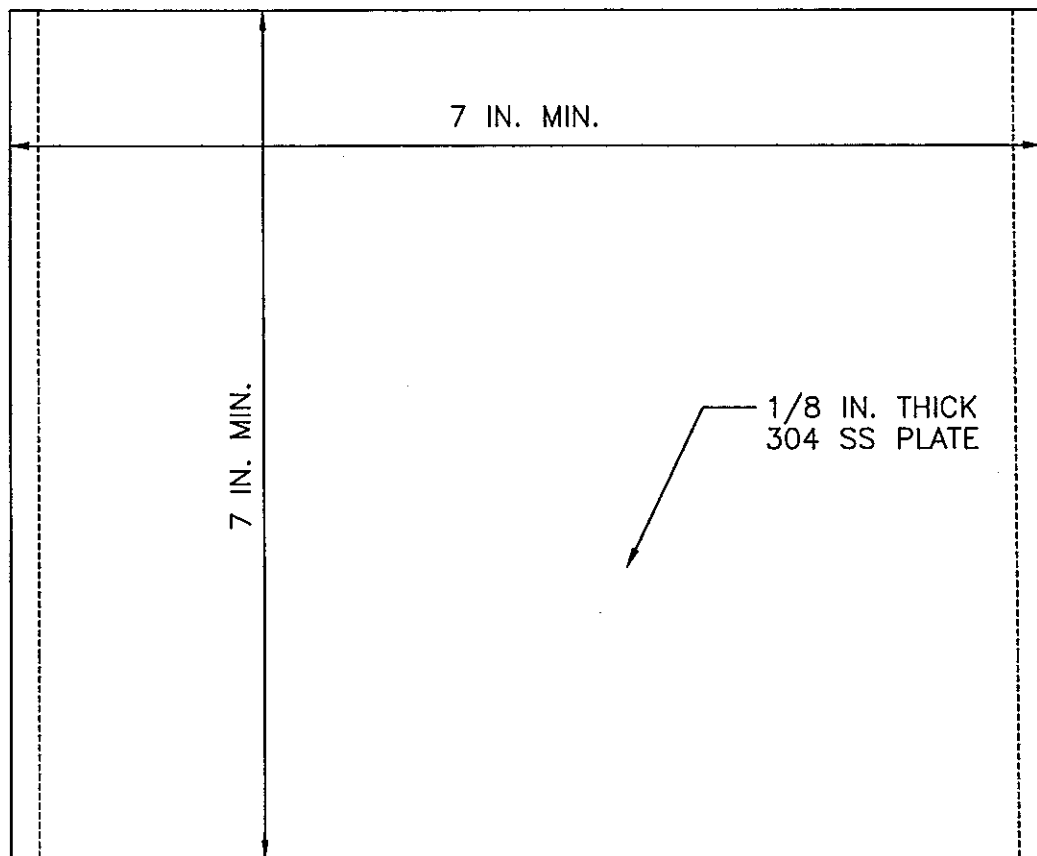
- 9 - Aluminum plate rolled to 54 in. O.D. X 12 in. high X 1/8 in. tk
- 11 - Aluminum 2 in. X 2 in. X 3/16 in., angle rolled to 47-3/4 in. I.D. leg out w/ (4) evenly spaced 9/16 in. dia. holes
- 12 - Aluminum cone roof plate 54 in. dia. X 1/8 in. tk (may substitute pressed plate or flanged and dished head)
- 14 - (4) 304 S.S. bolts 1/2 in. dia. X 1-1/2 in. long, with (1) flat washer, (1) lock washer, and (1) nut per bolt (refer to Fig. 3). May substitute 1 in.  $\phi$  X 1/2 in. thick bar stock, drilled and tapped, and welded to angle for nut and lock washer.

NOT TO SCALE

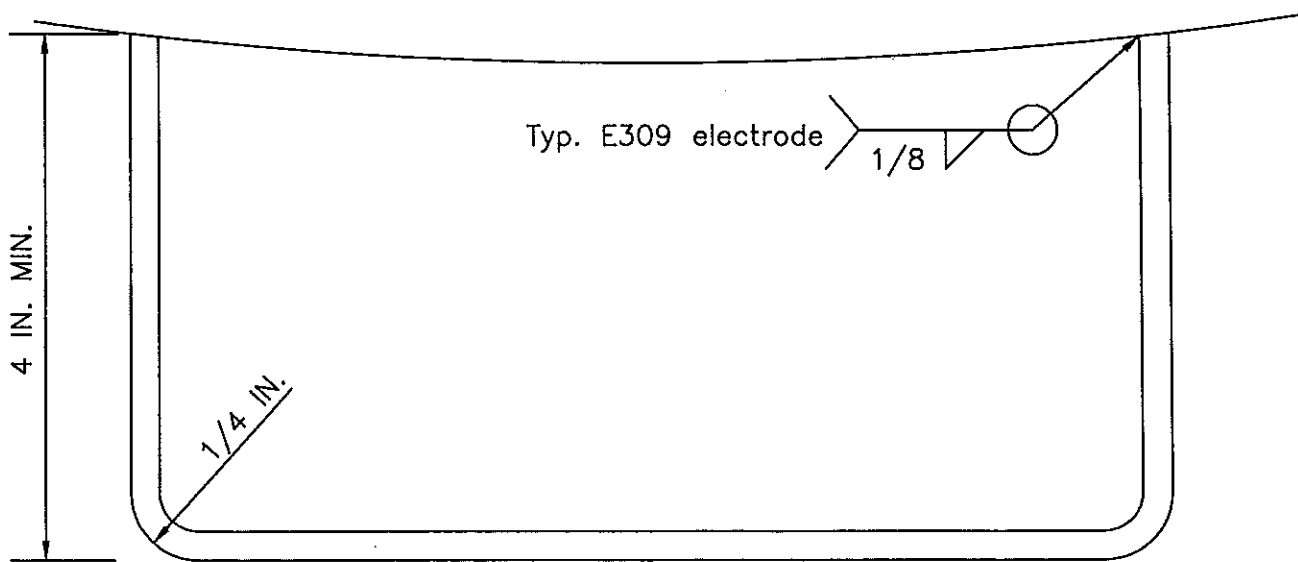
SHEET 4 OF 5



# NAMEPLATE ATTACHMENT BRACKET



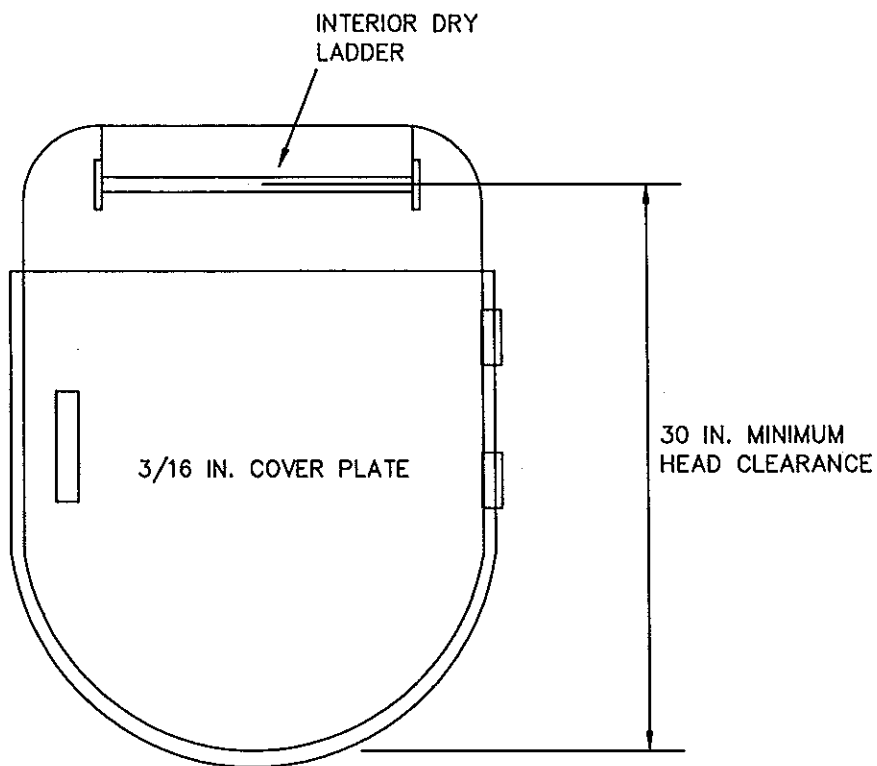
MOUNT NAMEPLATE TO BRACKET WITH NO. 12 STOVE BOLTS (304 S.S.)  
CLEAN, PAINT AND CURE BRACKET PRIOR TO INSTALLING NAMEPLATE.



DRILL ALL HOLES FOR ATTACHMENT OF NAMEPLATE TO BRACKET PRIOR TO CLEANING.  
PROTECT NAMEPLATE FROM DAMAGE DURING CLEANING.  
PROTECT NAMEPLATE FROM APPLICATION OF COATING ON EXPOSED SURFACE.

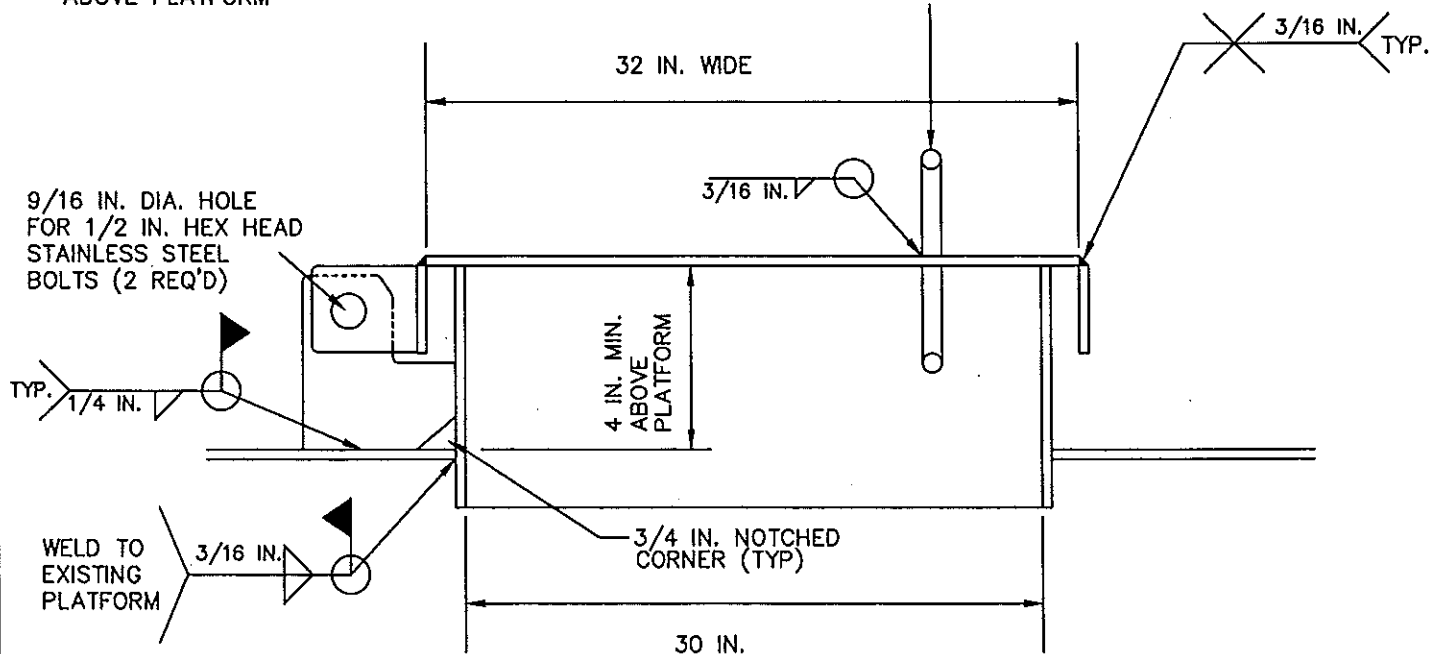
# PLATFORM MANHOLES

COVER MUST OPEN AT LEAST 45° PAST VERTICAL



HANDLE AND HINGES SHALL BE INSTALLED SO WHEN COVER IS OPEN COVER IS AWAY FROM BOTTOM OF LADDER ABOVE PLATFORM

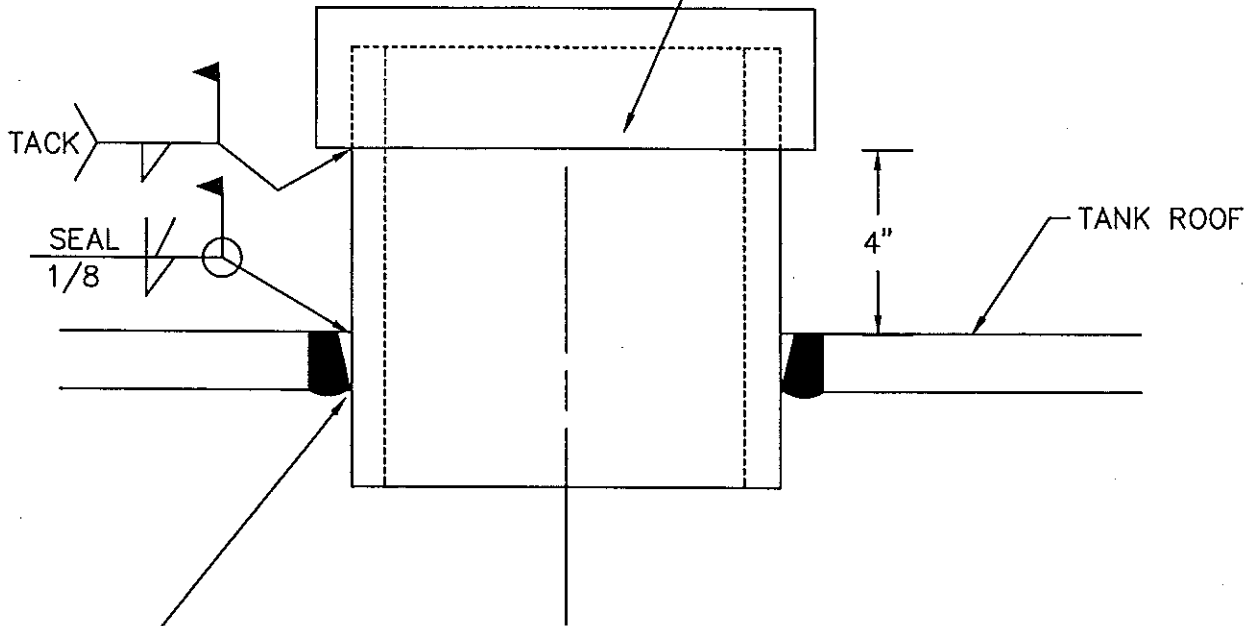
5/8 IN. DIA. x 6 IN. x 3 IN. HANDLES ON TOP & BOTTOM SIDES OF COVER



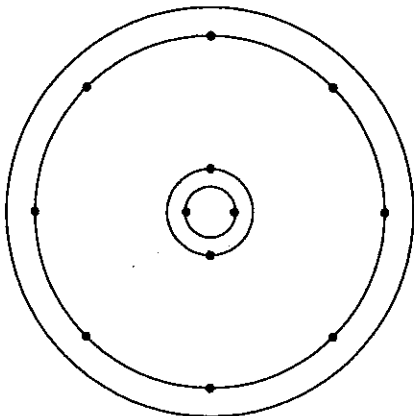
# ROOF SCAFFOLD RIGGING OPENINGS

NOTE: THE PLUG SHALL EXTEND BELOW THE THREADS ON THE PIPE TO ALLEVIATE WARPING OF THE THREADS WHEN WELDING

2-1/2"  $\phi$ , MIN. SCH. 80, (2.875" O.D. x 0.276" WALL) STEEL PIPE W/ THREADS AT TOP OF PIPE EXTERIOR. CAP PIPE WITH THREADED STEEL CAP. THREADS WRAPPED WITH TEFLON TAPE.



PIPE WELDED ON INTERIOR AND EXTERIOR OF ROOF.  
NO PIPES SHALL BE INSTALLED BELOW THE TOP CAPCITY LEVEL.



RADIUS	# OF COUPLINGS
REPLACE EXISTING	4
25'	8
TOTAL	12

RADIUS DIMENSIONS ARE APPROXIMATE

## LAYOUT



SIGN AND LOGO

LOGO AND SIGN SHALL BE APPLIED ON ONE SIDE OF THE TANK.  
LOGO AND SIGN SIZE AND LOCATION SHALL BE VERIFIED PRIOR TO APPLICATION.  
OWNER SHALL APPROVE FINAL SIZE, LOCATION, AND COLORS.  
SUN AND WATER LOGO SHALL BE APPROXIMATELY 8 FT 9 IN. TALL X 13 FT 7 IN. LONG.  
SIGN SHALL BE APPROXIMATELY 8 FT 7 IN. TALL.  
SIGN AT "AMERICAN WATER" SHALL BE APPROXIMATELY 30 FT LONG.  
"A" IN "AMERICAN WATER" SHALL BE APPROXIMATELY 3 FT 6 IN. TALL.

## SECTION 01010

### SUMMARY OF WORK

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#### PART 1 -- GENERAL

##### 1.1. GENERAL

- A. The General Conditions, Supplementary Conditions, and applicable portions of Division 1 are part of this Section.

##### 1.2. DESCRIPTION OF TANK

- A. The 400,000 gallon steel elevated single pedestal water tank is located off of Ellis Drive in Owenton, Kentucky. The tank is approximately 55 ft in diameter. The tank is a single pedestal tank of welded steel construction with a rafter supported roof. The tank was erected by Pitt-Des Moines, Inc. in 1988 under contract number 58035.

##### 1.3. WORK UNDER THIS CONTRACT

- A. The Work covered under this Contract shall consist of the complete cleaning and repainting of the 400,000 gallon steel elevated single pedestal tank in Owenton, Kentucky on the interior wet surfaces, the spot cleaning and spot coating of the interior dry surfaces, and the complete cleaning and repainting of the exterior surfaces with containment. Additional Work items include: the furnishing and installing new platform manhole covers and curbs, platform handrails, overflow pipe elastomeric check valve, ladder safe-climbing devices, clog-resistant roof vent, and screen for access tube vent; modification of ladder rung spacing to be consistent; plugging of coupling in access tube; and including other miscellaneous repairs and incidental items such as coordination with the OWNER, first anniversary evaluation, disposal of debris, site restoration, etc. The above description shall serve as general information only and shall not be construed to limit the contractor's responsibility or obligation to comply with the Contract Documents and Detailed Technical Specifications. The CONTRACTOR is referred to the following Specifications for the complete scope of Work.

##### 1.4. EVALUATION REPORT AND SITE INSPECTION BY BIDDER

- A. A Summarized Tank Information Sheet shall be made available to all Bidders. An evaluation report of the 400,000 gallon steel elevated single pedestal water tank dated March 22 and June 8, 2006, complete with color photographs, may be reviewed at the office of the PROJECT REPRESENTATIVE; or at the office of the ENGINEER, by appointment. Interpretation of this data is the responsibility of the Bidder. Although reasonable care was used in making and reporting this evaluation and the Summarized Tank Information Sheet, conditions may be encountered which vary from those as

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reported therein. Submitting a Bid on the forms bound with the Contract Documents shall acknowledge that the tank and site have been inspected by the Bidder and the evaluation report has been reviewed by the Bidder, or that the right to do so has been waived. Submitting a Bid on the forms bound with the Contract Documents shall acknowledge that the tank and site have been inspected by the Bidder. Persons desiring to access the tank must provide evidence of insurance coverage to the OWNER as outlined in the Contract Documents.

#### 1.5. ADDITIONAL INSURED

- A. The CONTRACTOR shall list a) Kentucky American Water; b) Tank Industry Consultants; and each of their officers, agents, and employees as additional insured on all insurance policies (except worker's compensation and employers' liability) and coverage which are required by the OWNER as specified in the Contract Documents.

### PART 2 -- PRODUCTS

- A. All products incorporated into the work area shall be new, unused, and first quality unless otherwise specifically noted.

### PART 3 -- EXECUTION

#### 3.1. QUALITY OF WORK

- A. All work shall be performed in a workmanlike manner by properly trained and qualified personnel under supervision of the CONTRACTOR'S Representative. CONTRACTOR shall perform all necessary inspections and quality control required by the coating manufacturer and obtain certification from the coating manufacturer for honoring coating manufacturer warranties.

END OF SECTION

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**SECTION 01040****COORDINATION**

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**PART 1 -- GENERAL****1.1. GENERAL**

- A. Coordination of the Project, and each portion of the Work on this Project shall be performed by the CONTRACTOR to achieve a quality product in an expedient manner in general accordance with this Section.

**1.2. PROJECT CONDITIONS**

- A. Background Investigations and Security Clearance: CONTRACTOR shall have background investigations performed in accordance with the OWNER'S requirements prior to moving on site. The cost of the background investigations and meeting the OWNER'S requirements for security clearance shall be included in the **Base Bid**.

- B. Schedule Submittal: Within two weeks after receipt of the Notice to Proceed and prior to starting the Work, the CONTRACTOR shall submit a bar chart or progress schedule indicating the anticipated schedule of the following functions:

1. move onto site and rig tank, including containment
2. repair Work (concrete and steel)
3. cleaning and priming interior wet surfaces
4. intermediate painting interior wet surfaces
5. finish painting interior wet surfaces
6. spot cleaning and spot priming interior dry surfaces
7. spot finish painting interior dry surfaces
8. cleaning and priming exterior surfaces
9. intermediate painting exterior surfaces
10. finish painting exterior surfaces
11. tank disinfection
12. site clean-up.

Also indicated on the bar chart or progress schedule shall be the anticipated progress payment schedule of values. The bar chart and payment request schedule shall be updated monthly and submitted with the payment request. **No separate payment shall be made for bonds, insurance, design, drawings, mobilization, containment of the cleaning and/or painting debris, or paint materials not incorporated into the Work.**

- C. Subcontracting: Subcontracting of the cleaning and/or painting shall not be allowed. If a SUBCONTRACTOR is used for other Work, the name and address of the proposed SUBCONTRACTOR shall be stated in the **Bid Form**.

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- D. Verification of Dimensions: CONTRACTOR shall verify all dimensions prior to fabrication or ordering any materials or parts needed for this Project. No additional compensation will be made to the CONTRACTOR for items that have to be modified, cut, or replaced because of inadequate dimensions used in ordering or fabricating items.
- E. Tank Empty for Painting: The tank shall be drained during all cleaning, application, and curing of the coating. It is anticipated that the work will be scheduled for spring 2007 to be completed by May 31. The Fairgrounds Tank cannot be out of service at the same time as the Perry Tank which is also scheduled for work in spring 2007.
- F. Sanitary Facilities: See Section 01500 - Temporary Facilities.
- G. Protection of Cabinets: Before cleaning on any portion of the tank, all cabinets on the site and inside the base cone shall be covered to prevent the entry of blasting abrasive, dust or paint and so they can continue to function as required. Any cabinets which cannot be covered will be designated by the OWNER. Any blasting, cleaning, or paint debris inside these cabinets shall be removed by the CONTRACTOR prior to completion of the Work.
- H. Protecting Equipment: The telemetering, telemetry antenna on the pedestal, other electrical apparatus, and other equipment on the tank and site, including all wiring, shall be protected from all damage and dust or other deleterious material infiltration during the operations of the CONTRACTOR. The operation of the equipment shall be continued during the repair, cleaning, and painting operations. Any items damaged by the operations of the CONTRACTOR shall be replaced in kind or acceptably repaired by the CONTRACTOR at no cost to the OWNER.
- I. Protecting Existing Antenna Equipment: The omni-directional antenna on the roof of the tank, the cables extending up the interior dry area and on the roof, and associated accessories shall be protected from all damage and dust or other deleterious material infiltration during the operations of the CONTRACTOR. **The antenna shall remain in service during the Project.** The operation of the equipment shall be continued during the repair, cleaning, and painting operations. Any items damaged by the operations of the CONTRACTOR shall be replaced in kind or acceptably repaired by the CONTRACTOR at no cost to the OWNER. The CONTRACTOR is advised that the cables for the antenna are very expensive to replace and any damage to the cables shall require their replacement. Galvanized antenna brackets shall not be painted under this Contract. Any damage to the galvanized brackets while cleaning the adjacent areas of the steel tank shall be spot cleaned and painted in accordance with the Specifications for Cleaning and Painting the Tank Exterior Section of these specifications. Carbon steel antenna brackets shall be cleaned and painted in accordance with these specifications. The cost of protecting the antenna equipment and working around the antenna equipment shall be listed in **Bid Item 6** on the **Proposal**.
- J. Welding Repairs: All welding repairs to the interior wet, interior dry, or exterior of the tank are to be made prior to all painting operations. Any resulting burrs, weld spatter, sharp edges, corners, or rough welds which would cause difficulty in applying a holiday-free coating shall be ground smooth. This grinding is considered incidental to the welding work and is to be included in the Base Bid. After grinding, these areas shall be

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cleaned to produce the profile recommended by the manufacturer of the coating system. (See Welding and Cutting Precautions paragraph in Section 01060 - Regulatory Requirements of these specifications for more requirements on welding.)

- K. Cleaning Areas of Welding and/or Grinding: It shall be necessary to remove the coating prior to the welding of the new items to the tank. All areas that have been welded and/or ground smooth shall be cleaned prior to painting to provide proper profile for the coating system. Areas to be welded shall be welded prior to the final cleaning and painting of surfaces within the heat-affected zone. The heat-affected zone includes the opposite side of the plate or member being welded. Even if not specifically mentioned as a part of the Work under this Agreement, those areas of paint or coatings in the heat-affected zone of areas not specified to be painted shall be cleaned and painted in accordance with the requirements listed in these Detailed Technical Specifications.
- L. Operation of Valves and Equipment: All operations which would include closing valves, switching, starting, stopping, or removal from service of any equipment shall be done by the OWNER'S personnel. If the CONTRACTOR desires the OWNER to close valves, operate switches, start, stop, or remove any equipment from service, the CONTRACTOR shall submit a written request to the OWNER, and if the OWNER determines that such action will not adversely affect the operations of the OWNER to provide water, then the OWNER may close valves, operate switches, start, stop, or remove the equipment from service. Such requests shall be directed to the PROJECT REPRESENTATIVE so interruptions, if any, of the OWNER'S operations or systems will be no longer than necessary. The CONTRACTOR shall have a full complement of personnel working on a continuous basis until the Work causing the interruption is completed. All Work performed under this Agreement shall be performed in close cooperation with the OWNER.
- M. Site Security: When not working on the tank or site (such as during the evening, weekends, holidays, or rain days), the CONTRACTOR shall secure all openings in the tank (greater than 8 in.) and access or rigging devices. Openings in the tank needed during ventilation of the tank shall be secured with bars, grating, or other means to allow sufficient air flow through the opening. The CONTRACTOR shall lock the site fence to prevent unauthorized personnel from gaining access to the site, the interior of the tank, and the CONTRACTOR'S equipment and supplies. The CONTRACTOR shall be solely responsible for the security of the site, tank, equipment, and supplies during both working and non-working hours.
- N. Public Safety: CONTRACTOR shall protect the public from harm caused by the CONTRACTOR'S actions and performance of the work. Prior to start of work or mobilization on site, the CONTRACTOR shall submit a site-specific Public Safety Plan based on the CONTRACTOR'S selected work methods to the ENGINEER. The Public Safety Plan shall include necessary plans and procedures to protect the general public from harm. The Plan should include such items, but not be limited to, requirements for safety exclusion zones, warning sign type and placements, protective barriers, safety and warning devices, devices for daylight and nighttime protection, and all devices required by state and local requirements. CONTRACTOR shall include a site plan summarizing the requirements of the Public Safety Plan for the specific work on the tank.

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CONTRACTOR'S Plan shall include the name of the Competent Person responsible for enforcing the certified Public Safety Plan.

- O. Traffic Control Plan: The CONTRACTOR shall permit traffic to pass around the Project site with the least possible inconvenience or delay. The CONTRACTOR shall maintain existing roads and streets within the Project limits, keeping them open, and in good, clean, and safe condition at all times. If any traffic lane closures are necessary, the CONTRACTOR shall provide all flaggers, signs, and other traffic control devices necessary to warn and protect the public at all times from injury or damage as a result of the CONTRACTOR'S operations that may occur on highways, roads, and streets. The CONTRACTOR shall submit a traffic control plan to the ENGINEER. If no disruption of traffic is anticipated, then the CONTRACTOR shall submit a statement indicating this.
- P. OWNER Performed Work: The CONTRACTOR shall cooperate with the OWNER who may be conducting other operations on or near the tank. The CONTRACTOR shall clean and paint all areas added or disturbed by the OWNER on the tank and attached accessories.
- Q. Furnishing and Installation of Items: Any reference in these specifications to furnishing an item or installing an item shall mean the item shall be both furnished and installed by the CONTRACTOR, unless specifically stated otherwise. Replacement shall mean the removal and legal disposal of the existing items, and furnishing and installation of the new items specified.
- R. Electrical Hazards: The CONTRACTOR shall at a minimum take the following safety measure to prevent accidents due to electrical hazards:
1. Electric Service Wiring: The CONTRACTOR shall be aware of the electric service wiring located adjacent to the tank. The CONTRACTOR shall relocate, deactivate, or provide necessary electric shock hazard protective devices to prevent exposure of workers and/or equipment to electric shock hazards. The CONTRACTOR shall verify that there is sufficient electric shock hazard protection for the workers and equipment prior to and throughout each working period on the job. The verification of the electric shock hazard protection is the sole responsibility of the CONTRACTOR and shall be accomplished without supervision from the OWNER, ENGINEER, FIELD OBSERVER, or other direct or indirect agents of the OWNER.

## PART 2 -- PRODUCTS

NOT USED

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**PART 3 -- EXECUTION**

## 3.1. QUALITY ASSURANCE

- A. CONTRACTOR'S Personnel: The CONTRACTOR shall have a full complement of personnel, for the proper coordination and expedition of the work, on a continuous basis until the work is completed.
- B. Notification: The CONTRACTOR shall notify the OWNER and the ENGINEER at least seven (7) days before starting the Work at the site. The CONTRACTOR shall reconfirm the commencement of Work with the OWNER and ENGINEER twenty-four (24) hours prior to starting work at the site.
- C. Emergency Information: The CONTRACTOR shall construct a plywood sign covered with a weatherproof, clear plastic cover and supported by wood posts. The CONTRACTOR shall post information on the plywood sign concerning emergency medical, fire, rescue and hazardous waste phone numbers from which personnel on the site can obtain information if needed. The CONTRACTOR shall also list the name and number of a representative of the CONTRACTOR who can be reached 24 hours a day in case of an emergency. The emergency information shall be in a central position, located so it is visible and accessible 24 hours a day. The emergency information shall be posted the entire length of time that the CONTRACTOR is performing Work at the tank site.
- D. Contractor Supervision: The CONTRACTOR shall provide a competent superintendent, satisfactory to the OWNER, for the Work at all times during working hours with full authority to act for him/her. The on-site superintendent shall not be replaced without prior written notification and written approval of the ENGINEER. The CONTRACTOR shall also provide an adequate staff for the proper coordination and expedition of his work. Should, in the opinion of the OWNER, any language barrier exist between the on-site superintendent and the OWNER or FIELD OBSERVER, the CONTRACTOR shall employ a qualified full-time interpreter or provide a new on-site superintendent at no additional cost to the OWNER. The on-site superintendent shall be bi-lingual if any workers are not proficient in English.
- E. Work Schedule: The repairing, cleaning, and painting shall be accomplished in such a way as to minimize the length of time the tank is out of service and to minimize the number of days required for observing the repairing, cleaning, and painting operations. **The CONTRACTOR'S attention is directed to the Agreement concerning Contract Time.**
- F. Times for Work: No repairing, cleaning or painting is to be done in the night period between sunset and sunrise. The times for Work shall also comply with local, state, and federal regulations and laws regarding days of week, noise, and interference with activities of surrounding property owners. The following exceptions may apply:

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1. Repair Work: Should tank interior temperatures be excessive for personnel welfare during daylight hours or should other job conditions make nighttime Work beneficial to the CONTRACTOR and OWNER, written permission may be granted by the ENGINEER and OWNER to conduct repair Work at night. This permission shall only be granted if the CONTRACTOR provides the proper lighting and safety equipment and informs the neighboring occupants and property owners.
  2. Cleaning and Painting Work: Should tank interior temperatures be excessive for paint application or personnel welfare during daylight hours or should other job conditions make nighttime Work beneficial to the CONTRACTOR and OWNER, written permission may be granted by the ENGINEER and OWNER to conduct Work at night. This permission shall only be granted if the necessary steel temperature, air temperature, humidity and dew point conditions are present and recorded during the application and initial drying or curing of the coatings. Also, the CONTRACTOR must provide the proper lighting and safety equipment and informs the neighboring occupants and property owners.
- G. Observation: The OWNER plans to engage Tank Industry Consultants or another designated representative of the OWNER, to perform full-time observation of the repair Work, cleaning, and painting. However, the OWNER reserves the right to engage only intermittent observation services. The CONTRACTOR shall notify and make available to the FIELD OBSERVER for observation of the fit-up of any new and/or replacement parts prior to welding and following post-weld cleanup. The CONTRACTOR shall notify and make available to the FIELD OBSERVER for observation all surfaces to be coated.
- H. Accessibility for Observation: All Work shall be made accessible to the FIELD OBSERVER using the CONTRACTOR'S rigging and equipment. If assistance is required for the FIELD OBSERVER to safely access the work, the CONTRACTOR shall furnish labor to assist the FIELD OBSERVER. The cost of this labor shall be included in the base contract amount.
- I. Attractive Nuisances and Cleanup: The job site shall be kept in a clean and safe condition at all times. Hazards or attractive nuisances shall be protected at all times. Upon completion of the Work, the job site and all nearby sites impacted by the Work activities shall be left clean of all debris or any other items resulting from the operations of the CONTRACTOR. The cost of any cleanup which must be done by the OWNER shall be deducted from funds due the CONTRACTOR. Impervious drip pans or double layers of plastic sheeting (each at least 6 mil thick) shall be placed under any compressors, generators, paint pumps, mixers, welding machines, etc. to prevent oils, solvents, organic compounds, or other contaminants from leaching into the soil. Fuel storage tanks, thinners, and other potentially hazardous materials shall be placed inside secondary containment structures to prevent contaminants from leaching into the soil. **Any oils, solvents, organic compounds, or contaminants spilled on the site during the process of the Work shall be immediately removed and cleaned up by the CONTRACTOR.** Any earth contaminated by a spill shall also be removed and replaced with new certified clean material to the satisfaction of the OWNER and the

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**ENGINEER. If the OWNER has to remove the oils, solvents, organic compounds, contaminants, or earth, the OWNER may deduct the costs of removal and clean-up from the total contract amount owed the CONTRACTOR.**

END OF SECTION

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## SECTION 01060

### REGULATORY REQUIREMENTS

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#### PART 1 -- GENERAL

##### 1.1. REGULATORY REQUIREMENTS

- A. It is consistent with the intent of these Specifications to describe those performance standards, often broad and general in nature, required to provide a complete and operating system. It shall be the responsibility of the CONTRACTOR to familiarize himself fully regarding the detailed needs and requirements of any and all regulatory agencies having jurisdiction over this work. These detailed needs and requirements shall be accommodated, as part of the Work, in every manner just as if they were prescribed in these Contract Documents and Specifications.
- B. Repair Standards: All design and repairs shall be in accordance with the local building code. All design and welding shall be done in accordance with AWWA D100-96 Standard for Welded Steel Tanks for Water Storage. Where tolerances, stresses, details, and modifications are not limited or provided by the AWWA Standard, the applicable sections of the following American Petroleum Institute (API) Standards shall apply. Unless otherwise specified, all steel structural and bar components shall be fabricated from new ASTM A-36 material, all steel plate components shall be fabricated from new ASTM A-36, and all steel pipe shall be fabricated from new ASTM A-53 material.
1. API Standard 650, 10<sup>th</sup> Edition (Addendum 4 -- December 2005) -- "Welded Steel Tanks for Oil Storage"
  2. API Standard 653, 3<sup>rd</sup> Edition (Addendum 2 -- November 2005) -- "Tank Inspection, Repair, Alteration, and Reconstruction"
- C. Painting Standards: All Work shall be done in accordance with the following requirements. The SSPC-Vis 1-02, the SSPC-Vis 3-93, and the SSPC-Vis 4-01 shall also be used taking into account staining from prior paint applications. The SSPC Standards SSPC-SP 6, Commercial Blast Cleaning and SSPC-SP 10, Near-White Blast Cleaning shall be modified to apply to each square inch instead of the approximately 9 square inch area indicated in paragraph 2.6 of each of these standards and shall be referred to hereinafter as SSPC-SP 6, Commercial Blast Cleaning (modified) and SSPC-SP 10, Near-White Blast Cleaning (modified). Where the foregoing standards, recommendations, and specifications are conflicting, said conflicts shall be brought to the attention of the ENGINEER. Manufacturer's published product data shall be adhered to unless changed in writing by the home office of the manufacturer.

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1. SSPC: The Society for Protective Coatings (SSPC)
  - a. Steel Structures Painting Manual (Volume 1, 3rd Edition - 1993 and Volume 2, 8th Edition - 2000, including Commentary Sections and Appendices).
  - b. SSPC-AB 1 "Mineral and Slag Abrasives"
  - c. SSPC-AB 2 "Specification for Cleanliness of Recycled Ferrous Metallic Abrasives"
  - d. SSPC-AB 3 "Newly Manufactured or Re-Manufactured Steel Abrasives"
  - e. SSPC-VIS 1-02 "Visual Standard for Abrasive Blast Cleaned Steel"
  - f. SSPC-VIS 3-93 "Visual Standard for Power- and Hand-Tool Cleaned Steel"
  - g. SSPC-VIS 4-01 "Guide and Reference Photographs for Steel Surfaces Prepared by Waterjetting"
  - h. SSPC-VIS 5-01 "Guide and Reference Photographs for Steel Surfaces Prepared by Wet Abrasive Blast Cleaning"
  - i. SSPC-Guide 6 (CON) "Guide for Containing Debris Generated During Paint Removal Operations"
  - j. SSPC-PA 2 "Measurement of Dry Paint Thickness with Magnetic Gages"
  - k. SSPC-PA Guide 3 "A Guide to Safety in Paint Application"
  - l. SSPC-SP 12, Surface Preparation and Cleaning of Steel and Other Hard Materials by High- and Ultrahigh-Pressure Water Jetting Prior to Recoating
  - m. SSPC-SP 13, Surface Preparation of Concrete
  - n. SSPC-SP 14, Industrial Blast Cleaning
2. American Water Works Association Standards
  - a. AWWA D100-96, Standard for Welded Steel Tanks for Water Storage
  - b. AWWA D102-03, Standard for Painting Steel Water-Storage Tanks
  - c. AWWA C652-02, Disinfection of Water-Storage Facilities
3. NSF International (NSF)
  - a. ANSI/NSF Standard 61 "Drinking Water System Components - Health Effects"

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4. the paint manufacturer's published product data
  5. these Detailed Technical Specifications
- D. Confined Space Entry: The CONTRACTOR shall comply with and have documented Confined Space Entry Procedures available at the tank site at all times as required by OSHA 29 CFR 1910.146. The CONTRACTOR shall also comply with any state and/or local requirements which are more restrictive than the federal requirements.
- E. Compliance with Environmental Regulations: Compliance with local, state and federal regulations concerning emissions or disposal of solid, particulate, liquid, or gaseous matter as a result of the cleaning, painting, or other operations under this Agreement shall be the responsibility of the CONTRACTOR. This compliance shall be accomplished without supervision from the OWNER, ENGINEER, FIELD OBSERVER, or other direct or indirect agents of the OWNER. No additional compensations for changes in the laws, regulations, or the interpretation thereof shall be granted by the OWNER. No burning of trash (including abrasive bags or other paper or wood products) on the site shall be permitted. All shielding, abrasive retrieval, or other methods of using precautions required by the regulating agencies shall also be accomplished at no additional cost to the OWNER unless otherwise provided herein. **Any fines imposed on the OWNER, ENGINEER, or FIELD OBSERVER by any regulatory agency as a result of the CONTRACTOR'S noncompliance with environmental regulations shall be paid or reimbursed by the CONTRACTOR.**
- F. Safety and Health: The CONTRACTOR shall comply with safe working practices for abrasive blasting, cleaning, burning, welding, and handling coated steel, and all health and safety regulations and requirements of Federal OSHA, state and local health regulatory agencies, Material Safety Data Sheets (MSDS), SSPC-PA Guide 3, and the paint and abrasive manufacturers. This compliance shall be accomplished without supervision from the OWNER, ENGINEER, FIELD OBSERVER, or other direct or indirect agents of the OWNER. Should vents, holes, rigging attachments, or any other modification, cutting, or welding be required to meet safety standards or otherwise accomplish the Work, they may be accomplished at the expense of the CONTRACTOR upon submitting of details in writing to, and with subsequent permission by the ENGINEER.
- G. Rigging Attachments: All rigging attachments present on the tank shall be carefully evaluated by the CONTRACTOR immediately prior to use for the type and magnitude of loads which CONTRACTOR intends to impose on them. Any rigging attachments installed on the tank by the CONTRACTOR shall be removed at the completion of the Work and areas damaged by the removal of these attachments shall be cleaned and painted in accordance with these specifications. The CONTRACTOR assumes all responsibility for use of any existing or added attachments.
- H. Welder's Certification: All welders and welding operators shall be certified in accordance with ASME, Section IX or AWS D1.1-96 (tests as described in AWS B2.1) to the procedures and processes required to accomplish the Work. Welder's certification papers

shall be furnished to the FIELD OBSERVER for review prior to the commencement of welding on the tank.

- I. Welding and Cutting Precautions: No welding or flame cutting through the existing coating system shall be permitted, unless adequate worker protection is provided in accordance with the instructions in ANSI Z49.1, "Safety in Welding and Cutting."
- J. Authority of CONTRACTOR'S COMPETENT PERSON(S): The CONTRACTOR'S COMPETENT PERSON(S) shall have the complete support of top management and written authority to ensure these operations are carried out in accordance with compliance plans and governmental regulations, independent of production pressures. To ensure independence, CONTRACTOR'S COMPETENT PERSON(S) shall report directly to the headquarters office and not to the site foreman. The CONTRACTOR'S COMPETENT PERSON(S) may have additional responsibilities and carry out other work assignments, but shall not routinely be a member of the crew that actually performs surface preparation work.
- K. Responsibility of CONTRACTOR'S COMPETENT PERSON(S): The CONTRACTOR'S COMPETENT PERSON(S) shall be responsible for overseeing surface preparation operations without supervision of the OWNER, ENGINEER, and/or FIELD OBSERVER. Responsibilities shall include:
1. Ensuring that a hazard communication program has been conducted for the CONTRACTOR'S personnel on site.
  2. Ensuring that the Confined Space Entry Procedures are followed.
  3. Ensuring that employees are wearing personal protective equipment and are trained in the use of such equipment and in the use of exposure control methods, personal hygiene facilities, respiratory protection, and decontamination practices.
  4. Ensuring that employees are utilizing fall protection and are trained in accordance with all OSHA regulations.
  5. Daily inspection and approval of the rigging equipment and scaffolding utilized.
  6. Ensuring that the engineering controls in use are in operating condition and functioning properly.
  7. Ensuring that fugitive emissions to air, water, or soil are minimized and that handling of all waste streams is in compliance with applicable regulations and contract specifications.
  8. Controlling access to the work site and ensuring that contaminated control boundaries are marked off.
  9. Maintaining project documentation.
- L. Compliance with Requirements: The CONTRACTOR shall comply with all applicable requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-596) and will hold the OWNER and ENGINEER harmless from any civil or criminal penalties

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imposed as a result of the CONTRACTOR'S noncompliance with such requirements. No additional compensations for changes in the laws, regulations, or the interpretation thereof shall be granted by the OWNER. The CONTRACTOR shall be responsible for complying with all laws and regulations, even if not specifically listed in these Specifications.

- M. Removal and Disposal of Cleaning Residue: The cleaning debris shall be cleaned up and stored daily in leak-proof covered dumpsters/containers lined with polyethylene. Each cover shall be designed and installed to keep all rainwater from entering the dumpster/container or the contents. All operations associated with this project shall be in conformance with the Occupational Safety and Health Act (OSHA) of 1970 and all regulations and standards promulgated under this Act, as well as all applicable state and local standards and regulations governing worker safety and health.
1. The material shall be legally disposed of by the CONTRACTOR in accordance with local, state, and federal laws. The CONTRACTOR shall be responsible for removing and properly transporting all the material from the project site. The material shall be transported in containers approved by the United States Environmental Protection Agency (USEPA) and local, state, and federal regulations. Bidders should prepare their **Base Bid** to include the cost of the transporting of the combined paint and spent cleaning material to a landfill and any disposal costs at that facility. All testing required by regulations or by the selected waste hauler or landfill, including any follow-up testing and the collection of the samples, shall be done at the CONTRACTOR'S expense. Copies of all manifests, testing results and treatment procedure documents shall be sent to the ENGINEER and OWNER.
  2. All dumpsters/containers and labeling of the dumpsters/containers shall adhere to the US Department of Transportation's regulations (49 CFR Part 172) and the HMTA.
- N. Material Safety Data Sheets: Material Safety Data Sheets (MSDS) shall be posted at the job site for each chemical product on the job site, including but not limited to coatings, thinners, other solvents, disinfecting agents, abrasives, welding materials, and flexible sealant material.

## 1.2. REQUIREMENTS

- A. Provide required personnel, equipment, and materials, to construct project according to applicable codes and standards.

## 1.3. APPLICABLE CODES AND STANDARDS

- A. As a minimum standard of quality and workmanship, construction Work is to comply with the latest edition of the following codes and standards insofar as they are applicable:
  1. American Water Works Association (AWWA) Standards
  2. American Welding Society (AWS) Standards

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3. American Petroleum Institute (API) Standards
  4. American Institute of Steel Construction (AISC)
  5. American Society for Testing and Materials (ASTM) Standards
  6. American Concrete Institute (ACI) Standards
  7. Concrete Reinforcing Steel Institute (CRSI) Standards
  8. SSPC: The Society for Protective Coatings (SSPC) Standards *{formerly Steel Structures Painting Council}*
  9. Occupational Safety and Health Administration (OSHA) Standards
  10. American National Standards Institute (ANSI) Standards
  11. United States Environmental Protection Agency (USEPA)
  12. United States Resource Conservation and Recovery Act (US RCRA)
  13. National Electric Code (NEC)
  14. NSF International (NSF) *{formerly National Sanitation Foundation}*
  15. Underwriter's Laboratories (UL)
  16. Kentucky Natural Resources & Environmental Protection Cabinet, Division of Waste Management (KY NR&EPC)
  17. International Building Code (IBC)
  18. NACE International (NACE) Standards *{formerly National Association of Corrosion Engineers }*
  19. American Society of Civil Engineers (ASCE)
- B. The above codes and standards are hereinafter referred to as "Reference Specifications."

## PART 2 -- PRODUCTS

NOT USED

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**PART 3 -- EXECUTION**

**3.1. PROCEDURES**

- A. CONTRACTOR shall comply with all regulations and requirements listed or inferred by this Section. CONTRACTOR shall pay all fees, obtain necessary permits as may be required for the prosecution of his work.

END OF SECTION

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**SECTION 01070****ABBREVIATIONS AND SYMBOLS**

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**PART 1 -- GENERAL**

## 1.1. SECTION INCLUDES

- A. Definitions used throughout the specifications.

## 1.2. DEFINITION OF PARTIES

- A. **OWNER** shall mean Kentucky American Water.
- B. **PROJECT REPRESENTATIVE** shall mean Mr. Michael Galavotti, Kentucky American Water, 2300 Richmond Road, Lexington, Kentucky 40502, telephone 859/268-6352, FAX 859/268-6374.
- C. **ENGINEER** shall mean Tank Industry Consultants - Headquarters: 7740 West New York Street, Indianapolis, Indiana 46214, telephone 317/271-3100, FAX 317/271-3300.
- D. **FIELD OBSERVER** shall mean Tank Industry Consultants - Headquarters: 7740 West New York Street, Indianapolis, Indiana 46214, telephone 317/271-3100, FAX 317/271-3300.
- E. The term **CONTRACTOR'S COMPETENT PERSON(S)** in this specification shall mean a representative of the CONTRACTOR who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. The name(s) of the CONTRACTOR'S COMPETENT PERSON(S) shall be submitted to the ENGINEER prior to performing any Work.

**PART 2 -- PRODUCTS**

NOT USED

**PART 3 -- EXECUTION**

NOT USED

END OF SECTION

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## SECTION 01300

### SUBMITTALS

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#### PART 1 -- GENERAL

##### 1.1. SECTION INCLUDES

- A. Procedure for submitting drawings, procedures, product data, progress schedules, welder's certification papers, medical surveillance program, etc. for steel water storage tank, piping, valves, and accessories.

#### PART 2 -- PRODUCTS

NOT USED

#### PART 3 -- EXECUTION

- A. Compliance: All drawings, catalog cuts, or other descriptive information submitted to the ENGINEER for review shall bear a signed approval by the CONTRACTOR that the submitted material meets these specifications prior to submittal to the ENGINEER for review.
- B. Certification: All submittals for the containment system and all accompanying support brackets and rigging shall be designed, signed, and sealed by a Professional Engineer registered in the State of Kentucky.
- C. Submittal Procedures: The CONTRACTOR shall submit four (4) sets of all submittals to the ENGINEER. One (1) set of ENGINEER reviewed submittals shall be forwarded to the OWNER. One (1) set of ENGINEER reviewed submittals shall be returned to the CONTRACTOR. Submittals shall at a minimum include the items listed on the Submittal Check List included with these specifications. A separate cover sheet such as the form bound in these Specifications, including the Item Number from the Submittal Check List, the Specification Section of reference for each submittal, and a brief description of each submittal included, shall be provided by the CONTRACTOR for each separate item submitted.

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- D. Review: Drawings, data, etc. shall be reviewed by the ENGINEER within approximately three (3) weeks after receipt. Review of these drawings shall not relieve the CONTRACTOR from responsibility for compliance with the specifications or for the adequacy of the repair, cleaning, and/or painting methods. The CONTRACTOR shall incorporate the submittal review process time and make the necessary scheduling adjustments so that the completion of the Work within the Contract Time is not affected.

END OF SECTION

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**SECTION 01500****TEMPORARY FACILITIES**

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**PART 1 -- GENERAL****1.1. WATER SUPPLY**

- A. Water for the purpose of this contract, other than filling the tank upon completion, must be obtained by the CONTRACTOR through direct local arrangements with the OWNER. The CONTRACTOR shall furnish and install all necessary temporary piping and valves in connection with such water supply. Water shall be furnished from the OWNER at no cost to the CONTRACTOR as long as the amount of water used remains within reason. All connections to the public water system shall contain a back-flow prevention device approved by the OWNER. One tank of water for the disinfection shall be furnished by the OWNER at no charge to the CONTRACTOR. Additional water for disinfection shall be furnished at current municipal water rates charged by the OWNER and shall be paid for by the CONTRACTOR.

**1.2. ELECTRICAL SUPPLY**

- A. The CONTRACTOR shall pay all fees, and obtain all necessary permits for power and lights as may be required for the prosecution of this Work. The CONTRACTOR shall furnish and install all necessary temporary service drops, wiring, connections, etc. for temporary service required by the CONTRACTOR. All costs associated with any temporary electric service required by the CONTRACTOR shall be included in the Base Bid.

**1.3. SANITARY FACILITIES**

- A. The CONTRACTOR shall, at the beginning of the Work, provide on the premises suitable temporary sanitary toilet, wash-up facilities, and changing facilities for the use of workers and shall maintain same in a sanitary condition and remove same when directed by the OWNER. The cost of these sanitary facilities shall be included in the Base Bid.
- B. The CONTRACTOR is advised that the OWNER is in the business of providing potable water and the CONTRACTOR'S sanitary arrangements shall not endanger the OWNER'S facilities.

**PART 2 -- PRODUCTS**

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**PART 3 -- EXECUTION**

NOT USED

END OF SECTION

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**SECTION 01700****PROJECT CLOSEOUT**

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**PART 1 -- GENERAL****1.1. CLOSEOUT PROCEDURES**

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for ENGINEER'S observation. Provide submittals to ENGINEER that are required by governing or other authorities. Submit Application for Final Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

**1.2. RESTORATION**

- A. The CONTRACTOR shall restore and/or replace paving, curbing, sidewalks, gutters, shrubbery, fences, sod, or other disturbed surfaces and structures to a condition equal to that before the Work began and to the satisfaction of the ENGINEER and shall furnish all labor and materials incidental thereto.

**1.3. DOCUMENTATION**

- A. The CONTRACTOR shall submit all documentation to OWNER and ENGINEER necessary for proper completion of the Project. This documentation shall include, but not be limited to, all manifests, abrasive testing results, soil testing results, etc.

**PART 2 -- PRODUCTS**

NOT USED

**PART 3 -- EXECUTION**

NOT USED

END OF SECTION

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**SECTION 02675****DISINFECTION OF WATER DISTRIBUTION SYSTEMS**

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**PART 1 -- GENERAL**

## 1.1. SECTION INCLUDES

- A. Disinfection of steel water storage tank under this contract.

## 1.2. REFERENCES

- A. American Water Works Association (AWWA) Standards
  - 1. ANSI/AWWA C652-02, Disinfection of Water-Storage Facilities

## 1.3. SEQUENCING AND SCHEDULING

- A. The interior wet coating shall be properly cured.
- B. The interior wet coating shall be washed with potable water.
- C. CONTRACTOR shall flush and disinfect the tank.
- D. The OWNER shall take and send in the samples to the laboratory for testing. The OWNER shall pay for the testing of the initial set of samples. The CONTRACTOR shall pay for all subsequent samples and testing, if required.

**PART 2 -- PRODUCTS**

## 2.1. MATERIALS

- A. Materials for disinfection of the tank shall be as listed in Section 3: Forms of Chlorine for Disinfection of AWWA C652-02.

**PART 3 -- EXECUTION**

## 3.1. WASHING TANK INTERIOR WET SURFACES

- A. After proper curing of the interior wet paint and prior to disinfecting, the CONTRACTOR shall wash the tank interior surfaces with potable water. All equipment, including brooms, brushes, spray equipment, and worker's boots, shall be disinfected before they are used to clean the water storage facility. The CONTRACTOR shall supply an adequate flow of water (20 gpm minimum) with sufficient pressure (60 psi minimum at the nozzle) to wash thoroughly all the interior wet surfaces, including those surfaces

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above the high water level. All residue shall be removed from the tank and inlet/outlet pipe.

### 3.2. DISINFECTION OF THE TANK

- A. It is the CONTRACTOR'S responsibility to flush and disinfect the tank and connecting piping until two or more successive samples taken in a twenty-four hour period show that the samples are satisfactory as reported from the OWNER'S laboratory. Method 2 (Section 4.3.2) of AWWA C652-02 shall be used for the disinfection procedure. Samples shall be taken and tested by the OWNER.

### 3.3. SAMPLING AND TESTING

- A. The OWNER shall take and send in the samples to the laboratory, but shall assume no responsibility for the sampling technique or the care of the samples. The stored tank water shall comply with current State and USEPA standards for organic, inorganic, and biological contaminants as influenced by the operations of the CONTRACTOR. One tank of water for the disinfection shall be furnished by the OWNER at no charge to the CONTRACTOR. Additional water shall be furnished at current municipal water rates charged by the OWNER and shall be paid for by the CONTRACTOR.

END OF SECTION

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**SECTION 09800****GENERAL SPECIFICATIONS FOR COATING SYSTEMS**

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**PART 1 – GENERAL**

## 1.1. SECTION INCLUDES

- A. General specifications for coating systems for steel storage tanks.

## 1.2. REFERENCES

- A. SSPC: The Society for Protective Coatings (SSPC) *{formerly Steel Structures Painting Council}*
1. Steel Structures Painting Manual (Volume 1, 3rd Edition - 1993 and Volume 2, 8th Edition - 2000, including Commentary Sections and Appendices).
  2. "Visual Standard for Abrasive Blast Cleaned Steel" SSPC-VIS 1-02.
  3. "Visual Standard for Power- and Hand-Tool Cleaned Steel" SSPC-VIS 3-93.
  4. "Guide and Reference Photographs for Steel Surfaces Prepared by Waterjetting" SSPC-VIS 4-01.
  5. "Guide and Reference Photographs for Steel Surfaces Prepared by Wet Abrasive Blast Cleaning" SSPC-VIS 5-01.
  6. "Mineral and Slag Abrasives" SSPC-AB 1
  7. "Specification for Cleanliness of Recycled Ferrous Metallic Abrasives" SSPC-AB 2
  8. "Newly Manufactured or Re-Manufactured Steel Abrasives" SSPC-AB 3
  9. "Guide for Containing Debris Generated During Paint Removal Operations" SSPC-Guide 6 (CON)
  10. "Measurement of Dry Paint Thickness with Magnetic Gages" SSPC-PA 2
  11. "A Guide to Safety in Paint Application" SSPC-PA Guide 3
  12. SSPC-SP 12, Surface Preparation and Cleaning of Steel and Other Hard Materials by High- and Ultrahigh-Pressure Water Jetting Prior to Recoating
  13. SSPC-SP 13, Surface Preparation of Concrete

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14. SSPC-SP 14, Industrial Blast Cleaning
15. SSPC-SP 15, Commercial Grade Power Tool Cleaning
- B. American Water Works Association (AWWA) Standards
  1. D100-96, Standard for Welded Steel Tanks for Water Storage.
  2. D102-03, Standard for Painting Steel Water-Storage Tanks.
- C. NSF International (NSF) Standard *{formerly National Sanitation Foundation}*
  1. ANSI/NSF Standard 61, Drinking Water System Components - Health Effects.
- D. The paint manufacturer's published product data shall be adhered to unless changed in writing by the home office of the manufacturer.
- E. Where the foregoing standards, recommendations, and specifications are conflicting, said conflicts shall be brought to the attention of the ENGINEER.

### 1.3. QUALITY ASSURANCE

- A. Personnel: The CONTRACTOR shall have a full complement of personnel, for the proper coordination and expedition of the Work, on a daily basis until the Work is completed.
- B. Quality of Paint Application: All cleaning and painting shall be done in a workmanlike manner. **Curing times and ventilation requirements of the paint manufacturer shall be strictly adhered to by the CONTRACTOR.**
- C. Ventilation: Forced ventilation shall be supplied to the interior of the tank for a period of time equal to the paint manufacturer's recommended recoat times for the prime coat and again after the intermediate coat and for a continuous period of at least 48 hours after the final coat has been applied. Adequate ventilation of the container bottom, riser, and other low lying areas of the tank and container shall be provided by the CONTRACTOR as required for solvent release and coating cure. This ventilation shall, at a minimum, be in accordance with AWWA D102-03 and shall be submitted for review. The CONTRACTOR shall furnish, install, and operate the equipment that is necessary to provide forced ventilation to aid curing. If supplementary heating or dehumidification is required to effect curing, the CONTRACTOR shall furnish, install, and operate the equipment to perform the supplementary heating or dehumidification required at no additional cost to the OWNER.
- D. Inlet/Outlet Piping and Overflow Piping: The CONTRACTOR shall be responsible for assuring that no foreign material including, but not limited to paint, abrasive, rags, or tools enter the inlet/outlet piping or overflow piping during the prosecution of the work. Any material found in this piping at the time the tank is placed back into service shall be removed at the expense of the CONTRACTOR. To aid in preventing the entrance of foreign material, the CONTRACTOR shall drain the pipe and either tack weld a plate

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over the inlet/outlet pipe, or place an expandable plug in the pipe. If a plate is tack welded over the pipe, any water in the pipe shall be drained and the plate shall completely cover the pipe and shall not be removed until the interior wet, interior dry, and exterior painting is complete. After the plate is removed the damaged areas of coating and weld burrs shall be ground smooth and recoated in accordance with the applicable paragraphs in this specifications. If an expandable plug is inserted in the pipe, the plug shall be placed approximately 18 in. down in the pipe to allow the proper coating of the inlet/outlet pipe. The inlet/outlet pipe interior shall be cleaned and painted approximately 1 pipe diameter below the top of the pipe.

- E. Diesel Powered Equipment: Due to possible contamination of the surfaces to be painted, diesel powered equipment shall not be used inside the tank unless equipped with an approved scrubber.
- F. Recoat Cycle: The CONTRACTOR shall review the manufacturer's published product data for minimum and maximum recoat times for all the coating systems selected for use. No succeeding coat shall be applied prior to the minimum recoat time of the preceding coat. If the maximum recoat window is exceeded prior to application of the succeeding coat, then the CONTRACTOR shall prepare the surfaces in accordance with the manufacturer's published product data **prior** to the application of the next coat. The cost for this additional surface preparation shall be borne by the CONTRACTOR with no additional cost to the OWNER. The Contract Time shall not be increased as a result of this additional surface preparation.
- G. Minimum Temperature of Coatings to be Mixed: Each component shall be maintained at a minimum of 75° F prior to mixing. The mixed coatings shall also be maintained at a minimum of 65° F during application. All costs associated with keeping the coating material at the minimum specified temperature shall be included in the **Base Bid**.
- H. Mixing of Coatings: Each component shall be thoroughly mixed on-site with a power agitator to ensure no solids or settled material remains on the bottom of the container before combining the components together. Accurate measuring apparatus shall be used to carefully measure each component by volume into a clean container in accordance with the manufacturer's published product data. The container shall be large enough to hold all components to be mixed, including thinner. The combined material shall be thoroughly mixed with a power agitator to achieve a uniform consistency. **Adherence to proper induction times for the combined coating material in accordance with the manufacturer's published product data shall be accomplished by the CONTRACTOR. No coating shall be applied until the minimum induction time has been reached.**
- I. Application and Damages: The materials shall be applied in accordance with the manufacturer's published product data and such that the end results are in compliance with these specifications (including all others inferred by reference). Application equipment (including air and airless sprayers, rollers and brushes) shall be good quality, in good condition and shall be as recommended by the coating manufacturer. **Techniques shall be used which will not cause coating droplets, etc. to travel more than 30 ft from the base of the tank. Spray painting of exterior surfaces shall be**

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utilized only with the enclosure fully raised and the roof covered, and only when the wind velocity and direction, and temperature and humidity are such that paint damage will not occur to real estate or personal property. Brush and roller painting of exterior surfaces shall be done only with the enclosure fully raised (with or without the roof covered) and shall be performed only when the wind velocity and direction, and temperature and humidity are such that paint damage will not occur to real estate or personal property. Prior to the cleaning or coating of any surface, the CONTRACTOR shall present a written plan for review by the PROJECT REPRESENTATIVE and the ENGINEER concerning how abrasive and/or paint damage to automobiles and property will be handled, including a process for quick removal of the abrasive or paint, and who will do the Work. This approval in no way shall relieve the CONTRACTOR from the responsibility of settling claims for damage, but is intended as an avenue to expedite and minimize said claims.

- J. Drying times and ventilation requirements of the manufacturer shall be strictly adhered to by the CONTRACTOR.

#### 1.4. SEQUENCING AND SCHEDULING

- A. Work Schedule: See Division 1 - General Requirements.
- B. Cleaning Areas of Welding and/or Grinding: See Division 1 - General Requirements.

#### 1.5. SUBMITTALS

- A. Submit sets to the ENGINEER in accordance with Section 01300 - Submittals

1. Product Data:

- a. Written description and catalog cuts describing each type of proposed abrasive for the interior wet, interior dry, and exterior surfaces. Include technical data sheets to substantiate compliance with specifications. The grade and resulting profile of the abrasive shall also be submitted prior to any cleaning operations. A letter from the coating manufacturer certifying that the resulting profile of the abrasive is acceptable for their coating product shall be submitted.
- b. Written description and catalog cuts describing each coating in the system. Information shall include: product delivery, storage, handling, application and curing instructions and limitations. Include technical data sheets to substantiate compliance with specifications.
- c. Written description and catalog cuts describing each thinner proposed for use with each coating system. Also include thinner or solvent proposed for use in cleaning paint equipment. Include technical data sheets to substantiate compliance with specifications.
- d. Written description and catalog cuts describing the proposed underwater curing epoxy paint for the interior wet surfaces at the First Anniversary

Inspection. Include technical data sheets to substantiate compliance with specifications.

2. Certification:

- a. Provide certification signed by supplier of the coating attesting that coating system proposed meets the specifications.
- b. Provide certification from the manufacturer certifying that all coatings will not contain more than 0.06% by weight of lead (or any lead compounds) in the cured coating for each coat applied. Certification shall be submitted for review.

3. Cleanup Procedures: Prior to the field cleaning or painting of any surface, the CONTRACTOR shall present a written plan to the OWNER and ENGINEER concerning how paint and/or abrasive damage to automobiles and property will be handled, including a process for quick removal of the paint or abrasive, and who will do the work. This approval in no way shall relieve the CONTRACTOR from the responsibility of settling claims for damage, but is intended as an avenue to expedite and minimize said claims.

4. Containment Procedures: A brief description and/or sketch of the proposed method for containing the cleaning debris and/or paint overspray/droplets shall be submitted with the Bid. Prior to the field cleaning or painting of any surface, the CONTRACTOR shall present a written plan to the OWNER and ENGINEER for review concerning how spent cleaning debris and/or paint overspray or droplets will be confined to the tank site. Reasonable care shall be exercised by the CONTRACTOR to prevent damage, nuisance, or hazardous conditions to adjacent or nearby property owners. **The containment system attachments to the tank shall be designed by a professional engineer registered in the State of Kentucky not to impose excessive loading or permanent deformations on the tank and tank appurtenances. The CONTRACTOR shall submit the P.E. designed, stamped, and signed details of the containment system and the attachment details for review prior to installation of the containment system on the tank.**

1.6. DELIVERY, STORAGE, AND HANDLING

- A. Requirements: Deliver, store, handle, apply, and cure materials in accordance with the manufacturer's published product data, including all requirements listed on the Material Safety Data Sheets (MSDS).
- B. Quantity: The amounts delivered shall provide the proper coverage rates, taking into account normal application loss.
- C. New Materials: All coating materials and thinners shall be new and furnished for this job and shall be delivered from the coating manufacturer to the job site in the original factory sealed containers which are clearly and properly labeled by the coating manufacturer showing the manufacturer's name, product number, type of paint, batch number, and expiration date.

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- D. Storage: Provide adequate storage facilities. Store coating materials within minimum and maximum ambient temperatures in accordance with the manufacturer's recommendations. Temperature of the coating prior to and during mixing shall be within the range stated in the manufacturers published product data.
- E. Abrasive: All expendable abrasive shall be new and furnished for this job. All abrasive shall be properly stored on skids or in a covered container. The abrasive shall be covered to protect the abrasive from water and weather. Do not allow abrasive to rest directly in contact with the ground.
- F. MSDS: Material Safety Data Sheets (MSDS) shall be posted at the job site for each chemical product on the job site, including but not limited to abrasives, coatings, thinners and other solvents, welding materials, flexible sealant material, and disinfecting agents.

## 1.7. PROJECT CONDITIONS

- A. Times for Work: See Section 01040 - Coordination.
- B. Painting Environment: All temperature and humidity requirements of the coating manufacturer shall be met. In addition, no painting shall be done when: 1) the relative humidity is greater than 85%; or 2) the temperature of the steel is or is expected to be less than 5°F above the dew point temperature during the application and until the coating has cured to resist moisture in accordance with the manufacturer's published product data; or 3) the ambient or steel temperature is below 35°F or is expected to drop below 35°F during the initial cure of the coating.
- C. Humidity and Temperature Measuring Equipment: The CONTRACTOR shall have wet bulb-dry bulb measuring equipment and steel temperature measuring equipment on the job at all times. Readings shall be recorded at the beginning and end of each painting session and at intervals of two hours or less. The CONTRACTOR shall monitor the tank bottom plate temperature during the interior coating curing to verify that minimum steel temperature requirements are satisfied.
- D. Wind Velocities: Wind velocities during exterior painting shall be compatible for the quality application of the exterior coatings.
- E. Safety and Health: See Section 01060 - Regulatory Requirements.
- F. Rigging Attachments: See Section 01060 - Regulatory Requirements.
- G. Containing Cleaning Debris and Overspray: The CONTRACTOR shall ensure that no spent cleaning/blasting debris, dust, overspray, coating droplets, or emissions of any kind, escape to the atmosphere and travel farther than **30 ft** from the base of the tank, or any lesser distance required to avoid contamination of adjacent buildings, work sites and parking lots.
  - 1. The containment system shall at a minimum meet the emission control requirements of a **Class 2 system**, as specified in Section 4.2.2.2 of the SSPC-Guide 6 (CON), Guide for Containing Debris Generated During Paint Removal

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Operations, dated October 1, 2004. The ground surrounding the tank shall be protected from all dust, emissions, debris, and other materials generated in the cleaning operations with a minimum of two layers of an impervious membrane covered with plywood.

2. The CONTRACTOR shall be responsible for all materials that are used and for any apparatus used to contain dust, emissions, debris, overspray, and coating droplets. **The containment system attachments to the tank shall be designed by a professional engineer registered in the State of Kentucky not to impose excessive loading or permanent deformations on the tank and tank appurtenances. The CONTRACTOR shall submit the P.E. designed, stamped, and signed details of the containment system and the attachment details to the tank prior to installation of the containment system on the tank. The containment system will place additional loads on the tank which the tank was not originally designed for. The CONTRACTOR shall reinforce the tank as necessary to assure no damage or permanent deformation occurs to the tank. Any damage done to the tank as a direct or indirect result of the containment system shall be repaired or sections replaced by the CONTRACTOR at no additional cost to the OWNER. Neither the ENGINEER or the OWNER assume any responsibility for the structural ability of the tank to support the containment system.**
3. If tarps are used as part of the containment system, the tarps shall be an impervious, solid, flame-resistant material, reinforced with a fiber mesh and shall allow as much light as possible to pass through the material.
4. If complete containment of the tank is utilized to contain all cleaning dust, emissions, debris, paint overspray, and paint droplets, the complete containment shall include a full roof bonnet.
5. The OWNER reserves the right to stop work or to require additional or different containment methods if the CONTRACTOR'S operations create a nuisance beyond the tank site property line in the sole opinion of the OWNER, the ENGINEER, the OWNER'S designated representative, any regulatory agency, or neighbor. All costs of providing an adequate containment system shall be included by the CONTRACTOR in the **Base Bid**.
6. Review of the containment system for containing the spent cleaning dust, emissions, debris, and overspray shall not warrant the structural integrity of the containment system and shall not warrant the structural integrity of the tank to support the containment system. Nor shall review of the containment system warrant the ability of the system to contain spent cleaning dust, emissions, debris, and overspray.
7. All attachments to the tank shall include a "reinforcing" pad designed to distribute the loads and prevent damage to the tank. The reinforcing pad may remain on the tank at the completion of the Project as long as the pad is completely seal welded, all edges ground to 1/8 in. minimum radius, and all corners rounded to 1 in.

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minimum radius. All other components of the containment system shall be removed by the CONTRACTOR at the completion of the exterior cleaning and painting. The containment submittal shall include, at a minimum, the following details and descriptions:

- a. Brackets (outriggers) to be attached to tank including size, material, etc.
- b. Bracket attachments to tank,
- c. Number of outriggers and spacing on tank container,
- d. Center roof "tree" and attachment details,
- e. Reinforcing pad between structure and attachments,
- f. Any additional roof support to prevent damage to or deformation of the tank roof or shell,
- g. Size of cables to be used and location,
- h. Anchorage details of hoist and location,
- i. Ground anchors,
- j. Catalog cuts of screen (tarp) material,
- k. Screen material connections & overlap,
- l. Operating/design parameters of containment, such as wind speed when containment shall be lowered or not used,
- m. Ground cover, material, etc.
- n. Other engineering controls & dust collection, and
- o. Any items desired to be left on the structure at the completion of the Project (subject to approval by OWNER).

H. Dust Collection: The CONTRACTOR shall furnish, operate, and maintain adequate dust collection during the Project to achieve negative pressure within the containment or adequate air flow within the tank interior. The dust collection system shall at a minimum meet the requirements of a **Type J1 Air Filtration system**, as specified in Section 5.4.5.1 of the SSPC-Guide 6 (CON), Guide for Containing Debris Generated During Paint Removal Operations, dated December 1, 1997. The dust collection shall be operated during all abrasive blast cleaning and after abrasive blast cleaning until the area is clean enough for coating application. The CONTRACTOR shall be responsible for all sizing, design of ductwork, etc., based upon the CONTRACTOR'S operations, number of blasters, duration of blasting, etc. The CONTRACTOR shall also take precautions to avoid a vacuum from developing inside the tank, as even a slight vacuum inside the tank may cause damage to the roof.

I. Attractive Nuisances and Cleanup: See Section 01040 - Coordination.

## 1.8. ENVIRONMENTAL REGULATIONS

A. See Section 01060 - Regulatory Requirements.

## 1.9. FIRST ANNIVERSARY INSPECTION

A. Requirements: A First Anniversary Inspection shall be performed. The CONTRACTOR'S Performance Bond or a separate Maintenance Bond shall be in force until after any remedial work is performed. The performance of this inspection and/or any remedial work shall not relieve the CONTRACTOR of any responsibility for defects

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in materials or workmanship which may or may not be evident during the First Anniversary Inspection.

- B. AWWA D102: The First Anniversary Inspection as described in Section 5.2 of AWWA D102-03 shall apply.
- C. Inspection: The CONTRACTOR shall perform the following duties at the First Anniversary Inspection:
1. The CONTRACTOR shall conduct the inspection, and shall furnish an experienced foreman, laborer, and rigging for the inspection.
  2. Washout: The CONTRACTOR shall washout the interior of the container for the one year evaluation the day prior to the evaluation. All debris from the interior of the container shall be legally disposed of by the CONTRACTOR at no additional cost to the OWNER.
  3. The CONTRACTOR shall be prepared to perform minor touch-up operations.
  4. The CONTRACTOR shall have at least one gallon of each of the exterior and interior dry primers, intermediate coating, and finish coatings at the time of the evaluation along with power cleaning tools and abrasive disks for spot cleaning.
  5. The CONTRACTOR shall have at least one quart kit of Aquatapoxy Paint (manufactured by Raven Lining Systems, Tulsa, OK, telephone 800/324-2810) to touch-up the interior wet surfaces. If more than one quart kit is needed, as determined by the FIELD OBSERVER, then the specified epoxy coatings shall be used to touch-up the interior wet surfaces.
  6. Costs: All costs associated with the First Anniversary Inspection, including the wash-out and disinfection, shall be included in the Base Bid price.
  7. Repairs: Spot repairs shall be made by the CONTRACTOR before returning the tank back into service. Repairs requiring extensive work and rigging may be delayed until a time mutually agreeable to the OWNER and CONTRACTOR.
  8. Disinfection: It is the CONTRACTOR'S responsibility to disinfect the tank in accordance with Section 02675 - Disinfection of Water Distribution Systems until two consecutive satisfactory water samples are reported from the OWNER'S selected laboratory.
- D. Date of Inspection: Failure of OWNER to establish a First Anniversary Inspection date will not relieve the CONTRACTOR of the responsibility to repair the interior wet, interior dry, and exterior coating systems.

## PART 2 -- PRODUCTS

### 2.1. MATERIALS

- A. Abrasive: The approved abrasive for cleaning shall meet the following requirements:
1. The abrasive for the **interior wet, interior dry, and exterior** surfaces shall be a commercially available, non-metallic, expendable abrasive or a re-usable abrasive (such as steel grit).
  2. All expendable abrasives shall meet the minimum requirements of SSPC-AB 1 and **all** abrasives meet the requirements of Class A (of SSPC-AB 1) for silica content (crystalline silica less than 1% by weight before blasting). The crystalline silica content shall be determined by the use of infrared spectroscopy or by other analytical procedures, such as wet chemical or x-ray diffraction analysis.
  3. The abrasive shall also be of a grit size to produce a 1.5 mil to 2.5 mil profile. If the profile exceeds this range, then the prime coat dry mil thickness shall be increased by the difference between the actual profile and the specified profile to prevent the peaks in the profile from rusting. However, the maximum coating thickness applied shall be in accordance with the coating manufacturer's recommendations.
  4. Use of abrasive on the exterior of the tank shall be based not only on its compliance with the technical application of the coatings, but also on its lack of nuisance to surrounding property.
  5. The abrasive shall be free from contaminants, such as excessive fine particles, paint, earth, regulated heavy metals, moisture, oil, or chlorides, which can cause premature failure of the coating.
  6. The steel grit shall meet the requirements of SSPC-AB 3, Newly Manufactured or Re-Manufactured Steel Abrasives, and be approved for use by the manufacturer of the blasting, media recovery, and separation equipment. The initial quantity of grit shall consist of an artificial working mix determined by the CONTRACTOR to produce an acceptable profile in accordance with these specifications. **Any steel grit used on this Project shall be sampled before use by the FIELD OBSERVER and the CONTRACTOR and have the samples sent to a laboratory for atomic absorption testing for total lead. The steel grit shall not be used until the results of the atomic absorption testing are submitted to the OWNER and indicate that the total lead levels are less than 600 ppm (<0.06%).**
  7. Blast Media Recovery and Separation System:
    - a. Equipment Requirements: The equipment provided for the spent abrasive recovery and media separation shall be a portable commercial recycling abrasive blast machine. The re-used abrasive shall comply with the requirements of SSPC-AB 2, Specification for Cleanliness of Recycled  
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Ferrous Metallic Abrasives. The system shall be capable of recovering the abrasive, and returning the spent cleaning debris to a dust separator which shall be an integrated part of the machine. The waste material shall be placed in container drums in accordance with the Removal and Disposal of Cleaning Residue paragraph of this specification.

b. Equipment Characteristics: As a minimum, the vacuum system used to recover the spent blasting material shall contain the following:

- (1) A double-chambered ASME pressure vessel, which can effectively recycle blast media on a continuous basis, with no interruption, except for air filter back-flushing, media loading to the machine, and removal of collected dust and spent cleaning debris.
- (2) A dust filter back-flushing system.
- (3) An air drying system consisting of an air-cooled aftercooler, sling separator, and desiccant drier.

B. Approval of Coatings: All coatings shall be acceptable to the USEPA and/or other controlling local health and environmental regulatory agencies. All interior wet coating materials, solvents, and other additives shall comply with ANSI/NSF Standard 61 "Drinking Water System Components - Health Effects." If the manufacturer's product data sheets indicate that the interior wet coating materials comply with ANSI/NSF Standard 61, then a separate letter from the manufacturer is not required. All coatings to be used shall be listed as to manufacturer and number or description on the **Listing of Suppliers**, which shall be included with the Bid. The specified coatings are intended to be standards of quality. Alternate coatings, materials and manufacturers will only be considered after award of the Contract in accordance with the Instructions to Bidders. If alternate coatings are submitted for review, the submittal shall include the following information:

1. A complete description of the proposed substitute,
2. The material for which it is to be substituted,
3. A letter from the coating manufacturer certifying that the coating meets or exceeds the coatings specified,
4. Price,
5. Performance and test data from the laboratory and field (including QUV/UVB testing for the exterior finish coat),
6. Coverage,
7. Life,
8. Manufacturer's field support capabilities.

C. Lead and Other Heavy Metal Restrictions in Coatings: Coatings which contain more than 0.06% by weight of lead (or any lead compounds), cadmium, or chromium in the cured coating for each coat applied shall not be used.



- D. Common Manufacturer: The interior wet, interior dry, and exterior coatings shall be furnished by the same manufacturer unless specifically stated otherwise in these Specifications.
- E. Thinners: Thinners shall be used only in accordance with the manufacturer's instructions. Only thinners recommended and furnished by the coating manufacturer shall be used for this Project.
- F. Underwater Epoxy: The approved underwater curing epoxy paint shall be 100% solids material and shall cure underwater. The approved underwater curing epoxy paint shall be acceptable to the USEPA, NSF, and/or other controlling local health and environmental regulatory agencies. The approved material shall not contain lead or any lead compounds.

### PART 3 – EXECUTION

#### 3.1. VERIFICATION OF CONDITIONS

- A. Before application of the coating materials, verify that specified procedures and products will provide adequate protection of the steel surfaces.

#### 3.2. PROTECTION

- A. Furnish and install protective covering over items on the tank and at tank site that are not to be cleaned or painted.

#### 3.3. APPLICATION

- A. The sequence to be followed in cleaning and painting shall be such that a minimum of damage to finished coatings will result. The entire tank should be cleaned and primed prior to the start of the intermediate painting to avoid damage to the topcoats from adjacent cleaning operations.
- B. Do not apply the primer closer than 6 in. to an uncleaned surface.
- C. If the recoat cycle of the primer prevents completely cleaning and priming the tank before applying the intermediate coat, then the CONTRACTOR shall submit, in writing, a schedule for exterior coating application which will avoid damage to the subsequent coats when applied close to uncleaned surfaces.

#### 3.4. TOLERANCES

- A. Coating Thickness:

- 1. The thickness of each type coating is essential to the system's integrity.
- 2. The addition of mils in a succeeding coat of a different generic type or formulation to make up for thin preceding coat(s) shall not be allowed. If a

thicker finish coat is needed to hide the underlying darker color on the exterior of the tank, a thicker coat may be applied, but it shall not exceed the maximum allowable thickness recommended by the coating manufacturer. When undercoats or other conditions show through the final coat, additional coats shall be applied until the coating film is of uniform finish, color, and appearance. Under no circumstances shall the dry film thickness of an individual coat or of the total coating system exceed the coating manufacturer's maximum allowable thickness limit.

3. Dry mil thickness greater than the coating manufacturer's maximum allowable thickness shall be considered unacceptable and shall be removed by the CONTRACTOR at no additional cost to the OWNER at the direction of the FIELD OBSERVER and OWNER.
  4. Coating thickness measurement procedures shall be as outlined in SSPC-PA 2.
  5. If determined to be in the best interest of the project, the FIELD OBSERVER may make dry film thickness measurements in excess of the amounts permitted by SSPC-PA 2.
- B. Uniformity: In addition to the minimum and maximum dry film requirements, all sags, runs, dry spray, pinholes, craters, roller nap, or other irregularities shall be removed and repaired.

### 3.5. OBSERVATION

A. Accessibility for Observation:

1. Notification: The ENGINEER and FIELD OBSERVER shall be notified 7 days, and confirmed 24 hours, prior to the start of any cleaning or painting operations of the steel.
2. Accessibility for Observation: All Work shall be made accessible to the ENGINEER and FIELD OBSERVER using the CONTRACTOR'S rigging and equipment. The CONTRACTOR shall include all labor necessary to assist the ENGINEER and FIELD OBSERVER in accessing the work to be observed. The cost of this labor shall be included in the base contract amount.
3. CONTRACTOR Supervision: The CONTRACTOR is to supervise the job properly at all times.
4. Observation: The OWNER reserves the right to engage full-time observation services, or to perform observations intermittently.

B. Observation Schedule:

1. Notification: The CONTRACTOR shall notify and make available to the ENGINEER and FIELD OBSERVER for observation all surfaces prior to the application of each coat of paint.

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2. Curing: The interior wet area coating shall be completely cured and the solvents shall be adequately released and the tank shall not be filled with water until observed by the FIELD OBSERVER and the OWNER. The exterior coating on the opposite side of water bearing surfaces shall be completely cured and the tank shall not be filled with water until observed by the FIELD OBSERVER and the OWNER. CONTRACTOR shall have coating manufacturer perform solvent rub tests, pencil hardness tests, or other industry recognized testing procedures recommended by the manufacturer to determine the coatings have cured prior to filling the tank. A letter from the coating manufacturer certifying their testing results and that the interior wet coating has cured such that it is ready for immersion service shall be submitted to the ENGINEER and OWNER prior to filling the tank. The CONTRACTOR shall monitor the tank bottom temperature during the interior wet coating curing to verify that minimum steel temperature requirements are satisfied.
  3. Holiday Testing: All interior wet coatings, including those above the top capacity level, shall be checked with a holiday detector by the CONTRACTOR. Testing shall be done in accordance with Section 5.1.3 of AWWA D102-03 and NACE RP0188 in the presence of the FIELD OBSERVER. Any voids indicated shall be repaired by applying more of the finish coat of paint by brush or roller. The areas shall be retested after the appropriate curing time. The coating system must pass the holiday test regardless of the existing coating thickness.
- C. Destructive Testing of Coatings: If disputes arise concerning the quality of the applied coatings, adhesion tests, Tooke Gage analysis, or some other form of destructive testing may be used to resolve the dispute. If it is found that such Work is defective, CONTRACTOR shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and OWNER shall be entitled to an appropriate decrease in the Contract Price. If, however, such Work is not found to be defective, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, testing, replacement, and reconstruction.

### 3.6. CLEANING

- A. CONTRACTOR Performed Cleanup: Upon completion of the Work, the job site shall be left clean of all debris, blasting abrasive, or any other items resulting from the operations of the CONTRACTOR.
- B. OWNER Performed Cleanup: The cost of any cleanup which must be done by the OWNER will be deducted from funds due the CONTRACTOR.

- C. Piping: Any material found in the inlet/outlet, drain or overflow piping as a result of the CONTRACTOR'S operations at the time the tank is placed back into service shall be removed at the expense of the CONTRACTOR.
- D. Tank Disinfection: Wash and disinfect tank in accordance with Section 02675 - Disinfection of Water Distribution Systems.

END OF SECTION

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**SECTION 09871****EXTERIOR COATING SYSTEM FOR STEEL STORAGE TANK**

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**PART 1 – GENERAL****1.1. SECTION INCLUDES**

- A. Exterior primers, intermediate, and finish coats for steel water storage tank.
- B. Specifications for the coating of the exterior surfaces of an existing steel potable water storage tank and accessories are included in this Section.
- C. Preparation of all exterior surfaces which are to receive coating are included in this Section.
- D. Painting of all exterior surfaces which are to receive coating are included in this Section.
- E. The exterior surfaces included are all exterior surfaces of the tank, including (but not limited to) the container, pedestal, base, all piping and appurtenances, and all threads, bolts, nuts, pins, brackets, seams, corners, etc., but excluding the nameplate and aluminum vent.

**1.2. RELATED SECTIONS**

- A. Section 09800 - General Specifications for Coating Systems

**PART 2 -- PRODUCTS****2.1. MATERIALS AND MANUFACTURERS**

- A. Coatings: Acceptable coating manufacturers and specifications for the exterior surfaces of the steel water storage tank follow; however, the CONTRACTOR is advised that all manufacturers presented below must certify that the coatings furnished are in compliance with these Specifications.

**1. Carboline Company, St. Louis, MO 63144**

(1) Carboguard 561	2.0 - 3.0 mils
(2) Carboguard 561	2.0 - 3.0 mils
(3) Carbothane 133 HB (semi-gloss)	3.0 - 4.0 mils
Total System Dry Thickness	<hr/> 7.0 - 10.0 mils

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2. **Tnemec Company, Inc., Kansas City, MO 64141**

(1) 66 Epoxoline	2.0 - 3.0 mils
(2) 66 Epoxoline	2.0 - 3.0 mils
(3) 1075U Endura-Shield II (semi-gloss)	2.0 - 3.0 mils
Total System Dry Thickness	<hr/> 6.0 - 9.0 mils

- B. **Sign and Logo:** As a Bid Item, the OWNER may choose to add a sign and logo on the tank. The application of the sign and logo shall be paid for by the lump sum price in Bid Item 8. After the proper curing of the finish exterior coat of polyurethane, the Kentucky American Water logo and sign as shown in Drawing SL shall be applied on one side of the container in two additional coats of fluorourethane in the appropriate thickness for the fluorourethane used. The OWNER shall approve the final colors for the logo and sign. Acceptable manufacturers and specifications follow:

1. **Carboline Company, St. Louis, MO 63144**

(4) Carboxane 950	2.0 - 3.0 mils
(5) Carboxane 950	2.0 - 3.0 mils
Total System Dry Thickness of Sign	<hr/> 11.0 - 16.0 mils

2. **Tnemec Company, Inc., Kansas City, MO 64141**

(4) Series 700 HydroFlon	2.0 - 3.0 mils
(5) Series 700 HydroFlon	2.0 - 3.0 mils
Total System Dry Thickness of Sign	<hr/> 10.0 - 15.0 mils

- C. **Thinners:** Only thinners recommended and furnished by the chosen coating manufacturer shall be used to thin the paint products.

- D. **Priming Inaccessible Areas:** Should any areas exist where the intersection of two members does not allow the complete cleaning of the intersection and the members cannot be separated for cleaning (such as anchor bolts, base plate-to-grout intersection, etc.), these intersections shall be post-primed with an aluminum platelet pigmented, material suitable for marginally cleaned surfaces. The material shall be recommended by the manufacturer of the exterior paint system and shall be as follows:

1. Carboline Carbomastic 15 Aluminum,
2. Tnemec 135-1243 Chembuild Metallic Aluminum,
3. or other material favorably reviewed in writing by the ENGINEER.

## PART 3 – EXECUTION

### 3.1. SURFACE PREPARATION

- A. All surface preparation shall be done in a workmanlike manner.

- B. Rough Areas: These paragraphs apply to rough areas created during the repair and repainting processes. This is separate from the Chipping and Grinding Bid Item and shall be included in the **Base Bid**.
1. Burrs, weld spatter, sharp edges, corners or rough welds which would cause difficulty in achieving a defect-free coating shall be chipped or ground smooth.
  2. It is not the intent to have the welds or scars chipped and/or ground flush. The objective of the chipping and/or grinding is to eliminate sharp edges, corners, and overlaps in order to provide a surface for the application of a uniform thickness coating without voids.
  3. These chipped and/or ground areas shall be cleaned to provide the proper surface profile for the paint.
- C. Surface Preparation: All exterior surfaces shall be cleaned to SSPC-SP6, Commercial Blast Cleaning (modified).
- D. Surface Contamination: The surfaces to be painted shall be free from mud, oil, grease, dust, moisture, halides, or other foreign material which would cause adhesion problems. If field tests by the FIELD OBSERVER find questionable amounts of contamination on the steel surfaces or painted surfaces to be topcoated, a representative of the home office of the paint manufacturer may be called to examine the surfaces in question and assist in determining if the surfaces are in accordance with these Specifications and the manufacturer's recommendations.

### 3.2. APPLICATION

- A. All painting shall be done in a professional manner.
- B. Priming:
1. Not later than during the same day and before the formation of rust, the cleaned exterior surfaces (SSPC-SP6 - modified) shall be primed with the specified primer.
  2. Stripe Coat: After the application of the first coat, all seams, edges, riser rods, lapped joints, rough areas, bolt heads and nuts, remains of erection lugs and scars, corners, member intersections, and other deviations from smooth surfaces shall be primed by brush and/or roller using 10% thinned material in a contrasting color to the primer. The 10% thinned material shall be worked sufficiently into all cracks, crevices, and seams. Initial spray application of this stripe coat shall not be permitted.
  3. The primer shall not be applied closer than 6 in. to an uncleaned surface.
- C. Priming Inaccessible Areas: If the intersection of two members does not allow the complete cleaning of the intersection and the members cannot be separated for cleaning,

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these intersections shall be post-primed with the aluminum-platelet pigmented material specified in this Section.

- D. Intermediate Coat: After adequate curing of the prime coat, all primed exterior surfaces shall be given a full intermediate coat of the specified paint. The color shall be slightly darker than that chosen for the finish coat, being dark enough to visually assure application of the finish coat, and light enough to allow proper hiding. (An intermediate coat lighter than the finish coat shall not be permitted due to the inability to distinguish between the lighter intermediate and the highlights of the gloss finish.) The coating manufacturer shall recommend a darker color for the intermediate coat and this color shall be submitted for review.
- E. Finish Coat: After adequate curing of the intermediate coat, the entire exterior surfaces shall then be given a final coat of the selected paint in the color selected by the OWNER.
- F. Sign and Logo: After the proper curing of the finish exterior coat of polyurethane, the Kentucky American Water logo and sign as shown in Drawing SL shall be applied on one side of the container in two additional coats of fluorourethane in the appropriate thickness for the fluorourethane used. The OWNER shall approve the final colors for the logo and sign. **The application of the sign and logo shall be paid for by the lump sum price in Bid Item 8.**

END OF SECTION

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**SECTION 09872****INTERIOR WET COATING SYSTEM FOR STEEL STORAGE TANK**

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**PART 1 – GENERAL****1.1. SECTION INCLUDES**

- A. Interior wet primers, intermediate coats, and finish coats for steel water storage tank.
- B. Sealant for steel water storage tank.
- C. Specifications for the coating of the interior wet surfaces of an existing steel potable water storage tank and accessories are included in this Section.
- D. Preparation of all interior wet surfaces which are to receive coating are included in this Section.
- E. Painting of all interior wet surfaces which are to receive coating are included in this Section.
- F. Furnishing and application of underwater curing epoxy paint for use at the time of the First Anniversary Inspection.
- G. All interior wet surfaces of the container, including (but not limited to) the roof, shell, bowl, manhole, ladder, access tube, overflow weir box, threads, bolts, nuts, pins, brackets, seams, corners, etc., the inside of the roof vent flange (with the exception of the ladder safe-climbing device and all surfaces of the vent interior and exterior, all screens, and all clog-resistant pallet materials, i.e. polyethylene, teflon, etc.), shall be cleaned and painted in accordance with the paragraphs in this Section. The exterior of the vent attachment flange to the roof shall be cleaned and painted in accordance with Section 09871 - Exterior Coating System for Steel Storage Tank. The ladder-safeclimbing device, screens, and the clog-resistant pallet materials shall be protected from the application of all coatings.

**1.2. RELATED SECTIONS**

- A. Section 09800 - General Specifications for Coating Systems

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**PART 2 -- PRODUCTS****2.1. MATERIALS AND MANUFACTURERS**

- A. Compliance with ANSI/NSF Standard 61: The approval of potable water tank interior coatings and sealers shall be based on written certification of compliance with ANSI/NSF Standard 61 and compliance with the requirements of state agencies. Adequate manufacturer's published product data concerning the transportation, storage, mixing, thinning, pot life, application, and curing shall be furnished to ensure that the finished product complies with ANSI/NSF Standard 61.
- B. Coating System: The approved coatings for the interior wet surfaces of the steel water storage tank shall be a three-coat interior catalyzed polyamide epoxy system. The system shall include an epoxy primer, intermediate coat of epoxy, and a finish coat of epoxy paint.
- C. Certification: Manufacturers presented below must certify that their coatings furnished are in compliance with the Specifications.
- D. Thinners: Only thinners recommended and furnished by the chosen coating manufacturer shall be used to thin the paint products.
- E. Coatings: Acceptable coating manufacturers and specifications for the interior wet surfaces of the steel water storage tank follow, and are intended to comply with the requirements of AWWA D102-03 Inside System No. 2, Three-Coat, Two-Component Catalyzed High Build Epoxy System with the exception that the brush post-priming of the seams and potential holiday areas is required.

**1. Carboline Company, St. Louis, MO 63144**

(1) Carboguard 561 S800 (White)	4.0 - 6.0 mils
(2) Carboguard 561 1898 (Off-White)	3.0 - 5.0 mils
(3) Carboguard 561 S800 (White)	5.0 - 6.0 mils
Total System Dry Thickness	<hr/> 12.0 - 17.0 mils

**2. Tnemec Company, Inc., Kansas City, MO 64141**

(1) 20-15BL (Tank White) Pota-Pox	4.0 - 6.0 mils
(2) 20-1255 (Beige) Pota-Pox	3.0 - 5.0 mils
(3) 20-15BL (Tank White) Pota-Pox	5.0 - 6.0 mils
Total System Dry Thickness	<hr/> 12.0 - 17.0 mils

- F. Underwater Epoxy: The following manufacturer's underwater curing epoxy paints are acceptable for this Project:

**1. Raven Lining Systems, Tulsa, OK 74106**

(1) AquataPoxy A-6 Paint (White)	8.0 - 12.0 mils
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## PART 3 – EXECUTION

### 3.1. SURFACE PREPARATION

- A. Cleaning Tank and Debris Removal: The OWNER will remove all water from the tank which will drain by gravity through the drain line. The CONTRACTOR shall remove all standing water, mud, and debris from the tank prior to starting work. **At least 4 ft to 6 ft of water was remaining in the tank when the tank was last drained.** All loose rust, loose paint, and dirt shall be removed from the tank interior prior to the beginning of cleaning operations. This debris shall be promptly stored in leak-proof covered dumpsters/containers on the site and disposed of in accordance with these Specifications. This debris shall be kept separate from the exterior paint and cleaning debris. Any water that enters the tank through leaking valves throughout the course of the Project shall be collected and removed from the tank by the CONTRACTOR at no additional cost to the OWNER.
- B. All surface preparation shall be done in a workmanlike manner.
- C. Rough Areas: These paragraphs apply to rough areas created during the repair and repainting processes. This is separate from the Chipping and Grinding Bid Item and shall be included in the **Base Bid**.
1. Burrs, weld spatter, sharp edges, corners or rough welds which would cause difficulty in achieving a defect-free coating shall be chipped or ground smooth.
  2. It is not the intent to have the welds or scars chipped and/or ground flush. The objective of the chipping and/or grinding is to eliminate sharp edges, corners, and overlaps in order to provide a surface for the application of a uniform thickness coating without voids.
  3. These chipped and/or ground areas shall be cleaned to provide the proper surface profile for the paint.
- D. Field Preparation: The complete interior wet surfaces of the tank including appurtenances shall be cleaned to SSPC-SP10, Near-White Blast Cleaning (modified). All surfaces shall be cleaned and primed after the repairs are completed.
- E. Surface Contamination: The surfaces to be painted shall be free from mud, oil, grease, dust, moisture, halides, or other foreign material which would cause adhesion problems. If field tests by the ENGINEER find questionable amounts of contamination on the steel surfaces or painted surfaces to be topcoated, a representative of the home office of the paint manufacturer may be called to examine the surfaces in question and assist in determining if the surfaces are in accordance with these Specifications and the manufacturer's recommendations.

### 3.2. APPLICATION

- A. All painting shall be done in a workmanlike manner.

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- B. Seam Sealer: After cleaning, seam sealer is to be applied to the roof vent intersection and roof manhole intersection to seal these intersections from moisture. It shall be applied in a workmanlike manner, being beveled at approximately 45°. **The cost of this seam sealing is to be included in the Base Bid, separate from other applications using seam sealer which may be listed in the SPECIFICATIONS FOR REPAIRS AND ADDITIONS TO THE TANK section of these Detailed Technical Specifications and included as a separate bid item.** This material shall be equal to the solventless epoxy seam sealers listed below and recommended by the manufacturer of the interior paint system. At the CONTRACTOR'S option, the Tnemec 63-1500 Filler and Surfacers may be applied after the priming of the surface, providing no rust has formed on any uncoated surfaces (such as crevices between plates).
1. Carboline Carboguard 501,
  2. Tnemec 63-1500
- C. Priming:
1. Prime Coat: Before the formation of rust and after observation of the surface by the FIELD OBSERVER, all cleaned surfaces shall be primed with the first coat specified below.
  2. Stripe Coat: After the application of the first coat, all seams, all edges, rods, rough areas, deviations from smooth surfaces, pits, bolt heads and nuts, remains of erection lugs and scars, and corners (including the intersection of the ladder rungs and the side rails) shall be primed by brush and/or roller using 10% thinned material in a contrasting color to the primer. The 10% thinned material shall be worked sufficiently into all cracks, crevices, and seams. Initial spray application of the stripe coat shall not be permitted.
  3. The primer shall not be applied closer than 6 in. to an uncleaned surface.
- D. Intermediate Coat: After adequate curing of the prime coat and stripe coat, the primed interior surfaces shall then be cleaned of all dust, overspray, abrasive, and other contaminants which might cause premature coating failure and given one intermediate coat of the specified paint.
- E. Finish Coat: After adequate curing of the intermediate coat, the intermediate coated interior surfaces shall then be cleaned of all dust, overspray, abrasive, and other contaminants which might cause premature coating failure and given one finish coat of the specified paint in a color of white. If the finish coat is not applied before the recoat window elapses, then the intermediate coated surfaces shall be scarified by abrasive blasting or other method recommended by the manufacturer in order for the finish coat to properly bond to the intermediate coat.
- F. Flexible Sealant: After the curing of the finish coat of paint, Sikaflex-1a flexible polyurethane sealant (or equal allowed in writing by the ENGINEER) shall be applied to any unwelded container roof seams and the unwelded inner ends of the roof rafters (the majority of the roof seams are seal welded except for the seams at the ends of the roof

rafters under the roof cap). It shall be applied in a workmanlike manner, being beveled at approximately 45°. The color of the sealant shall be white. The sealant shall have the approval for use in potable water from the USEPA, ANSI/NSF, and any applicable local health regulatory agency.

END OF SECTION

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**SECTION 09873****INTERIOR DRY SPOT COATING SYSTEM**

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**PART 1 – GENERAL**

## 1.1. SECTION INCLUDES

- A. Interior dry spot coating for steel water storage tanks.
- B. Specifications for spot coating areas of corrosion and coating failure on the interior dry surfaces and spot coating interior dry surfaces damaged during the modifications of the existing steel potable water storage tank and accessories are included in this Section.
- C. Spot surface preparation and painting of interior dry surfaces which are to receive coating are included in this Section.
- D. All interior dry surfaces, including (but not limited to) the base cone, support column, access tube, all piping, accessories, ladders, threads, bolts, nuts, pins, brackets, seams, corners, etc., excluding the ladder safe-climbing devices, shall be cleaned and painted in accordance with the paragraphs in this Section.

## 1.2. RELATED SECTIONS

- A. Section 09800 - General Specifications for Coating Systems

**PART 2 -- PRODUCTS**

## 2.1. MATERIALS AND MANUFACTURERS

- A. Certification: Manufacturers presented below must certify that their coatings furnished are in compliance with the Specifications.
- B. Approved Coatings: The approved coatings for the spot cleaned interior dry surfaces shall be an aluminum pigmented epoxy coating suitable for marginally cleaned surfaces. Acceptable specifications and manufacturers follow; however, the CONTRACTOR is advised that all manufacturers presented below must certify that their coatings furnished are in compliance with these Specifications.

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1. **Carboline Company, St. Louis, MO 63144**

(spot) Carbomastic 15 Aluminum	5.0 - 6.0 mils
(spot) Carboguard 561	4.0 - 6.0 mils
Total System Dry Thickness	<u>9.0 - 12.0 mils</u>

2. **Tnemec Company, Inc., Kansas City, MO 64141**

(spot) 135-1243 Chembuild Metallic Aluminum	4.0 - 6.0 mils
(spot) 66 Epoxoline	5.0 - 6.0 mils
Total System Dry Thickness	<u>9.0 - 12.0 mils</u>

- C. Thinners: Only thinners recommended and furnished by the chosen coating manufacturer shall be used to thin the paint products.

### PART 3 – EXECUTION

#### 3.1. SURFACE PREPARATION

- A. Surface Preparation and Debris Removal: All areas with paint failing by blistering, flaking, peeling, undercutting or other deterioration, and all areas exhibiting corrosion (rust) on the interior dry surfaces, and all areas of coating damaged during the repairs, shall be spot cleaned to SSPC-SP6, Commercial Blast Cleaning (modified) or SSPC-SP 11, Power Tool Cleaning to Bare Metal. Coating surfaces surrounding the spot cleaned areas shall be sanded or scarified to provide a proper surface profile in the existing coating for the adherence of the spot prime coat. The paint and cleaning debris shall be promptly stored in leak-proof covered dumpsters on the site and disposed of in accordance with the Removal and Disposal of Cleaning Residue paragraph of Section 01060 – Regulatory Requirements of these specifications.
- B. Surface Contamination: The surfaces to be painted shall be free from mud, oil, grease, dust, moisture, halides, or other foreign material which would cause adhesion problems. If field tests by the FIELD OBSERVER find questionable amounts of contamination on the steel surfaces or painted surfaces to be coated, a representative of the home office of the paint manufacturer may be called to examine the surfaces in question and assist in determining if the surfaces are in accordance with these Specifications and the manufacturer's recommendations.

#### 3.2. APPLICATION

- A. All painting shall be done in a workmanlike manner.
- B. Spot Prime Coat: Not later than during the same day and before the formation of rust, the interior dry surfaces cleaned (SSPC-SP11 and SSPC-SP6) shall be coated with the specified primer.

- C. Spot Finish Coat: The primed interior dry surfaces shall then be given a final coat of the selected paint.

END OF SECTION

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**SECTION 09874****INTERIOR DRY COATING SYSTEM FOR STEEL STORAGE TANK****ALTERNATE BID ITEM 9**

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**PART 1 – GENERAL****1.1. SECTION INCLUDES**

- A. Interior dry primers and finish coats for steel water storage tank.
- B. Sealant for steel water storage tank.
- C. Specifications for the coating of the interior dry surfaces of an existing steel potable water storage tank and accessories are included in this Section.
- D. Preparation of all interior dry surfaces which are to receive coating are included in this Section.
- E. Painting of all interior dry surfaces which are to receive coating are included in this Section.
- F. All interior dry surfaces, including (but not limited to) the base cone, support column, access tube, all piping, accessories, ladders, threads, bolts, nuts, pins, brackets, seams, corners, etc., excluding the ladder safe-climbing devices, shall be cleaned and painted in accordance with the paragraphs in this Section.

**1.2. RELATED SECTIONS**

- A. Section 09800 - General Specifications for Coating Systems

**PART 2 -- PRODUCTS****2.1. MATERIALS AND MANUFACTURERS**

- A. Coating System: The approved coatings for the interior dry surfaces of the steel water storage tank shall be a two-coat interior catalyzed polyamide epoxy system. The system shall include an epoxy primer and a finish coat of epoxy paint.
- B. Certification: Manufacturers presented below must certify that their coatings furnished are in compliance with the Specifications.

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- C. Thinners: Only thinners recommended and furnished by the chosen coating manufacturer shall be used to thin the paint products.
- D. Approved Coatings: The approved coatings for the surfaces mentioned above in paragraph 1 of this Section are intended to comply with the requirements of AWWA D102-03, Inside System No. 1, Two-Coat, Two-Component, Catalyzed High Build Epoxy System with the exception that the brush post-priming of the seams is required and the minimum thickness is 6 mils. Acceptable specifications and manufacturers follow; however, the CONTRACTOR is advised that all manufacturers presented below must certify that their coatings furnished are in compliance with these specifications.

1. **Carboline Company, St. Louis, MO 63144**

(1) Carboguard 561	3.0 - 5.0 mils
(2) Carboguard 561	4.0 - 6.0 mils
Total System Dry Thickness	<u>7.0 - 11.0 mils</u>

2. **Tnemec Company, Inc., Kansas City, MO 64141**

(1) 66 Epoxoline	3.0 - 5.0 mils
(2) 66-15BL (Tank White) Epoxoline	4.0 - 6.0 mils
Total System Dry Thickness	<u>7.0 - 11.0 mils</u>

- E. Priming Inaccessible Areas: Should any areas exist where the intersection of two members does not allow the complete cleaning of the intersection and the members cannot be separated for cleaning (such as base plate-to-grout intersection, etc.), these intersections shall be post-primed with an aluminum platelet pigmented, material suitable for marginally cleaned surfaces. The material shall be recommended by the manufacturer of the exterior paint system and shall be as follows:

1. Carboline Carbomastic 15 Aluminum,
2. Tnemec 135-1243 Chembuild Metallic Aluminum,
3. or other material favorably reviewed in writing by the ENGINEER.

## PART 3 – EXECUTION

### 3.1. SURFACE PREPARATION

- A. All surface preparation shall be done in a workmanlike manner.
- B. Rough Areas: These paragraphs apply to rough areas created during the repair and repainting processes. This is separate from the Chipping and Grinding Bid Item and shall be included in the **Base Bid**.
1. Burrs, weld spatter, sharp edges, corners or rough welds which would cause difficulty in achieving a defect-free coating shall be chipped or ground smooth.
  2. It is not the intent to have the welds or scars chipped and/or ground flush. The objective of the chipping and/or grinding is to eliminate sharp edges, corners, and

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overlaps in order to provide a surface for the application of a uniform thickness coating without voids.

3. These chipped and/or ground areas shall be cleaned to provide the proper surface profile for the paint.
- C. Field Preparation: Clean all interior dry steel surfaces to SSPC-SP6, Commercial Blast Cleaning (modified). Interior dry surfaces of which the opposite side of the steel is in contact with water (which include, but are not limited to the dry bowl and access tube interior) as well as the top sides of interior dry platforms shall be cleaned to SSPC-SP 10, Near-White Blast Cleaning (modified).
  - D. Surface Contamination: The surfaces to be painted shall be free from mud, oil, grease, dust, moisture, halides, or other foreign material which would cause adhesion problems. If field tests by the FIELD OBSERVER find questionable amounts of contamination on the steel surfaces or painted surfaces to be topcoated, a representative of the home office of the paint manufacturer may be called to examine the surfaces in question and assist in determining if the surfaces are in accordance with these Specifications and the manufacturer's recommendations.

### 3.2. APPLICATION

- A. All painting shall be done in a workmanlike manner.
- B. Field Priming:
  1. Not later than during the same day and before the formation of rust, the interior dry surfaces cleaned in the field (SSPC-SP6, SSPC-SP10) shall be primed with the specified field primer.
  2. Stripe Coat: After the application of the first coat, all seams, edges, lapped joints, rough areas, bolt heads and nuts, remains of erection lugs and scars, corners (including the intersection of the ladder rungs and the side rails), member intersections, and other deviations from smooth surfaces shall be primed by brush and/or roller using 10% thinned material in a contrasting color to the primer. The 10% thinned material shall be worked sufficiently into all cracks, crevices, and seams. Initial spray application of this stripe coat shall not be permitted.
  3. The primer shall not be applied closer than 6 in. to an uncleaned surface.
- C. Priming Inaccessible Areas: If the intersection of two members does not allow the complete cleaning of the intersection and the members cannot be separated for cleaning, these intersections shall be post-primed with the aluminum-platelet pigmented material specified in this Section.
- D. Finish Coat: After adequate curing of the prime coat, the primed interior surfaces shall then be cleaned of all dust, overspray, abrasive, and other contaminants which might cause premature coating failure and given one finish coat of the specified paint. If the finish coat is not applied before the recoat window elapses, then the primed surfaces shall

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be scarified by abrasive blasting or other method recommended by the manufacturer in order for the finish coat to properly bond to the prime coat.

END OF SECTION

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**SECTION 09880****CONCRETE COATING**

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**PART 1 – GENERAL****1.1. SECTION INCLUDES**

- A. Surface preparation of concrete tank foundation and grout.
- B. Painting of concrete tank foundation and grout.

**1.2. RELATED SECTIONS**

- A. Section 09800 - General Specifications for Coating Systems

**1.3. SEQUENCING AND SCHEDULING**

- A. Allow new grout and concrete a 30 day cure period prior to painting. Protect grout and concrete surfaces from damage after painting.

**PART 2 -- PRODUCTS****2.1. MATERIALS AND MANUFACTURERS**

- A. Approved Coatings: Acceptable coating manufacturers and specifications for the concrete and grout surfaces follow; however, the CONTRACTOR is advised that all manufacturers presented below must certify that the coatings furnished are in compliance with these Specifications. The finish coat shall be in a color matching the Tnemec color listed below.

**1. Carboline Company, St. Louis, MO 63144**

(1) Carboguard 561 or Carboguard 890	3.0 - 5.0 mils
(2) Carboguard 561 or Carboguard 890	4.0 - 6.0 mils
Total System Dry Thickness	<hr/> 7.0 - 11.0 mils

**2. Tnemec Company, Inc., Kansas City, MO 64141**

(1) 20-15BL (Tank White) Pota-Pox or 66 Series Epoxoline	3.0 - 5.0 mils
(2) 20-15BL (Tank White) Pota-Pox or 66 Series Epoxoline	4.0 - 6.0 mils
Total System Dry Thickness	<hr/> 7.0 - 11.0 mils

- B. Certification: Manufacturers presented herein must certify that their coatings furnished are in compliance with the Specifications.

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- C. Thinners: Only thinners recommended and furnished by the chosen coating manufacturer shall be used to thin the paint products.

## PART 3 – EXECUTION

### 3.1. SURFACE PREPARATION

- A. Exposed Concrete: CONTRACTOR shall dig down around the tank foundation to expose approximately 4 in. more of the concrete than will normally be exposed (4 in. below finish grade).
- B. Surfaces to be Coated: All exposed concrete areas of the tank foundation and grout on the exterior from 4 in. below finish grade to the base plates shall be cleaned by blast cleaning to SSPC-SP 13, Surface Preparation of Concrete for Severe Service. Any existing coatings and other contaminants shall be removed without entirely removing the surface concrete. The aggregate shall not be exposed by the blasting operations. All efflorescence and laitance shall be removed from the surface. The cleaning operation shall be performed to open subsurface holes and voids and to produce a profile for the proper adherence of the specified coating system (equivalent to 40-60 grit sand paper).
- C. Abrasive: The abrasive used for the blast cleaning operations shall be a nonmetallic type abrasive. The color shall be approximately equivalent to the concrete surface to be cleaned.
- D. Surface Contamination: After abrasive blast cleaning, the concrete surfaces shall be cleaned by vacuuming or blowing off with compressed air. All dust and other loose particles shall be removed prior to coating. The surfaces to be coated shall be free from mud, oil, grease, dust, moisture, or other foreign material which would cause adhesion problems.

### 3.2. APPLICATION

- A. All coating shall be done in a workmanlike manner.
- B. Coating: The exposed concrete surfaces cleaned in the field shall be primed with the specified field primer. After adequate curing of the primer, all primed concrete surfaces shall then be cleaned of all dust, overspray, abrasive, and other contaminants which might cause premature coating failure and given one finish coat of the specified paint in a color matching the Tnemec color specified.
- C. Recoat Cycle: The manufacturer's recommendations concerning the time between coats and the preparation of the surface shall be followed.

- D. Backfill: After the coatings have cured and been approved by the ENGINEER, the earth is to be backfilled to the original grade or left as required by the OWNER.

END OF SECTION

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**SECTION 13200****STEEL WATER STORAGE TANK REHABILITATION**

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**PART 1 -- GENERAL****1.1. REFERENCES**

- A. American Water Works Association (AWWA) Standard
  - 1. D100-96, Standard for Welded Steel Tanks for Water Storage
  - 2. C151/A21.51-91, ANSI Standard for Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or Other Liquids
- B. American Welding Society (AWS)
  - 1. Publication D1.1, Structural Welding Code, Steel
- C. American Petroleum Institute (API)
  - 1. API Standard 650, 10<sup>th</sup> Edition (Addendum 4 -- December 2005) -- "Welded Steel Tanks for Oil Storage"
  - 2. API Standard 653, 3<sup>rd</sup> Edition (Addendum 2 -- November 2005) -- "Tank Inspection, Repair, Alteration, and Reconstruction"
- D. American Society for Testing and Materials (ASTM)
  - 1. A 36, Structural Steel
  - 2. A 53, Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
  - 3. A 325, Type 3, High-strength Bolts for Structural Steel Joints
  - 4. A 516, Pressure Vessel Plates, Carbon Steel, for Moderate- and Lower-Temperature Service
  - 5. A 537, Pressure Vessel Plates, Heat-Treated, Carbon-Manganese-Silicon Steel
  - 6. A 563, Type C3 and DH3, Carbon and Alloy Steel Nuts
  - 7. A 573, Structural Carbon Steel Plates of Improved Toughness
  - 8. A 580, Stainless and Heat-Resisting Steel Wire

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9. A 588, High-Strength Low-Alloy Structural Steel With 50 ksi (345 MPa) Minimum Yield Point to 4 in. (100 mm) Thick
10. A 633, Normalized High-Strength Low-Alloy Structural Steel
11. A 662, Pressure Vessel Plates, Carbon-Manganese, for Moderate- and Lower-Temperature Service
12. A 678, Quenched and Tempered Carbon Steel Plates for Structural Applications
13. F 436, Hardened Steel Washers
14. F 593, Stainless Steel Bolts, Hex Cap Screws, & Studs
15. F 594, Stainless Steel Nuts

E. American Society of Civil Engineers (ASCE)

1. ANSI/ASCE 7-98, Minimum Design Loads for Buildings and Other Structures

F. American National Standards Institute (ANSI)

1. Standard A14.3, Safety Code for Fixed Ladders

G. Occupational Safety and Health Administration (OSHA)

1. Regulation 1910.23, Guarding Floor and Wall Openings and Holes
2. Regulation 1910.27, Fixed Ladders
3. Regulation 1926.1053, Ladders

H. International Building Code (IBC)

I. NACE International (NACE) Standard *(formerly National Association of Corrosion Engineers)*

1. Standard RP0178-91, Standard Recommended Practice - Fabrication Details, Surface Finish Requirements, and Proper Design Considerations for Tanks and Vessels to be Lined for Immersion Service
2. Visual Comparator - Surface Finishing of Welds (Complements NACE Standard RP0178)

1.2. PROJECT CONDITIONS

- A. Submittals: Submittals shall be submitted for review prior to performing any Work in accordance with Section 01300 - Submittals.
- B. Repair Standards: See Section 01060 - Regulatory Requirements.

- C. Painting Standards: See Section 01060 - Regulatory Requirements.
- D. Welder's Certification: All welders and welding operators shall be certified to the procedures and processes required to accomplish the Work. Welder's certification papers shall be furnished to the FIELD OBSERVER for review prior to the commencement of welding on the tank.

## PART 2 -- PRODUCTS

### 2.1. MATERIALS:

- A. All structural steel components shall be fabricated from new ASTM A 36 material.
- B. All new steel pipe attached to the tank shall be ASTM A 53.
- C. All steel plates, shapes, and bars shall be fabricated from new ASTM A 36 material if the tank is designed in accordance with AWWA D100-96. All steel plates and shapes shall be free from any laminations which bring questions as to the structural integrity of the member. Laminations exposed on the surface or edges of the steel shall be repaired or the member replaced. The CONTRACTOR shall be responsible for ultrasonically or otherwise investigating the extent of sub-surface laminations to the satisfaction of the ENGINEER. Members found to have internal laminations shall be replaced in a timely manner at the expense of the CONTRACTOR.
- D. All screen material shall be made of Type 316, stainless steel wire conforming to ASTM A 580.
- E. All stainless steel bolts and nuts shall conform to ASTM F 593 and F 594.
- F. All interior bolts and nuts below the high water line shall be of silicon bronze or 316 stainless steel material. All bolts used for the roof structure shall be coated with Inorganic Coatings IC 531 high ratio inorganic zinc coating.
- G. All aluminum used in the aluminum clog-resistant vent shall be fabricated from the following materials:
  - 1. Structural Shapes: All aluminum structural shapes of the vent shall be alloy 6061-T6.
  - 2. Plates and Sheets: All aluminum plates and sheets shall be mill finished alloy 3003-H16, 3004, 6061-T6 or 5052-H32 and shall a minimum nominal thickness of 0.050 in.
  - 3. Bolts and Fasteners: All bolts and fasteners shall be Series 304 stainless steel, 2024-T4 aluminum, or anodized 7075-T73 aluminum. Only stainless steel fasteners shall be used to attach aluminum to steel.

## PART 3 -- EXECUTION

### 3.1. REPAIRS AND ADDITIONS

- A. Construction Drawing Submittals: Construction Drawings (or other information) of all fabricated and new items shall be submitted to the ENGINEER for review in accordance with Section 01300 - Submittals. Drawings submitted shall at a minimum include the following:
1. Details of the nameplate mounting bracket if different from that shown in Drawing NP.
  2. Details of the new aluminum tank vent and steel exhaust fan flange if different from that shown in Drawing CRV, Sheets 1-5.
  3. Catalog cuts, installation, operation and maintenance instructions for the new ladder safe-climbing devices and storage apparatus.
  4. Details of the platform manholes if different from that shown in Drawing PM.
  5. Details of interior rigging openings if different from that shown in Drawing RO.
- B. Man-Hours: For unit price work paid for per single man-hour, only time worked performing the specified action, i.e. welding or grinding, and only the time of the person performing the specified action shall be recorded as man-hours to be paid under the unit price item. Costs for all equipment, supplies, normal rigging and associated time required, supervision, Competent Person, overhead, insurance, and profit shall be included in the Base Bid or distributed within the unit price Bid Item to be based upon man-hours used in actual performance of the specified action.
- C. Legal Disposal of Removed Steel or Appurtenances: Any existing steel plate, members, or appurtenances of the tank and/or tower specified to be removed or replaced shall be removed and legally disposed of by the CONTRACTOR.
- D. Initial Abrasive Blast Cleaning for Evaluation of Pitting: All areas of apparent pitting shall be initially abrasive blast cleaned for evaluation of pitting by the FIELD OBSERVER. The cost of this initial abrasive blast cleaning shall be included in the **Base Bid**.
- E. Repair Welding: After the initial abrasive blast cleaning, any pits defined for pit welding by the FIELD OBSERVER shall be repaired by welding. All areas of apparent seam deterioration shall be initially abrasive blast cleaned, and any seam corrosion or undercut defined by the FIELD OBSERVER shall be repaired by arc-gouging or grinding the deteriorated weld seam (if determined necessary by the FIELD OBSERVER) and welding. **The number of man-hours of repair welding shall be paid for by the unit price in Bid Item 2.**
- F. Pit Filling and Surfacing: After the specified surface preparation, any pits, rough areas or seams defined for pit filling or surfacing by the FIELD OBSERVER shall be filled with

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solventless polyamide epoxy seam sealer of the type recommended by the supplier of the interior paint system. The epoxy seam sealer shall be applied neatly and smoothly to the steel surfaces and any rough areas of the seam sealer shall be sanded smooth prior to the application of the coating system. Costs for all labor, equipment, supplies, rigging, and other associated costs for application of the solventless polyamide epoxy seam sealer shall be included in the unit price per gallon. **The number of gallons of pit filling shall be paid for by the unit price in Bid Item 3.**

- G. Interior Chipping and/or Grinding: Any irregular surfaces defined by the FIELD OBSERVER, including but not limited to surface protrusions, burrs, fitting scars, sharp edges or corners, weld spatter, weld overlap and rough weld beads shall be removed from all interior surfaces of the tank, including appurtenances, by chipping and/or grinding these irregular surfaces to a smooth curve. The protruding parts of lugs or brackets shall be removed and ground flush. The objective of chipping and/or grinding is to eliminate irregular surfaces to provide a surface that is sufficiently smooth for the application of a uniform thickness coating without voids and free from defects. This chipping and/or grinding is also intended to make it easier for the interior coating to pass the holiday test. **The number of chipping and/or grinding man-hours on the tank interior shall be paid for by the unit price in Bid Item 4.**
- H. Remove Vegetation Around Base of Tank and Regrade: All earth and vegetation which has encroached on the foundation and the tank base plate and the dry brush around the overflow pipe splash pad shall be removed. In addition, the site shall be regraded to expose the top 6 in. to 12 in. of the concrete foundation and to allow for proper drainage of the site. This work shall be performed prior to the start of cleaning and painting operations. The top of the foundation is currently 4-1/2 in. to 9-1/2 in. above grade. **The removal of vegetation and regrading of the site shall be paid for by the lump sum price in Bid Item 7.**
- I. Concrete Repair: Any chipped concrete corners (greater than 1 in. loss), cracks (greater than 1/16 in. wide), and other failed areas of concrete indicated by the FIELD OBSERVER shall be chipped to sound concrete so that the edge of the chipped-out area is at least 60° with the surface of the concrete. Then these areas shall be prepared by cleaning to remove all paint, coating materials, dust, laitance, grease, or other bond-inhibiting materials. The CONTRACTOR shall apply a patch of Emaco R350 from Master Builders, Euco Verticote from Euclid Chemical Company, SikaRepair 223 from Sika Corporation, or equal allowed in writing by the ENGINEER. The materials shall be prepared and applied in accordance with the manufacturer's instructions. The patched areas shall conform to the original contour of the concrete foundation  $\pm$  1/8 in. After the patching material has hardened sufficiently for the removal of any forms, etc., a water-based curing compound shall be applied to the surfaces of the repaired area. The curing compound shall be a water-based material such as Masterkure 200W from Master Builders, Aqua-Cure from Euclid Chemical Company, or equal allowed in writing by the ENGINEER. This concrete repair shall be performed a minimum of 28 days prior to the cleaning and painting of the concrete to allow the concrete patching material to cure in accordance with the manufacturer's recommendations.



- J. Grout Repair: The grout which is between the base plate and the concrete foundation shall be tested by the CONTRACTOR under the observation of the FIELD OBSERVER by using a sharp 16 oz. hammer. Any missing or loosened portions of grout shall be replaced with a nonshrinking, nonstaining, high-strength structural grout material. The material shall be Master Builders' MASTERFLOW 928, Euclid Chemical Company's EUCO N-S Grout, L&M Construction Chemicals' DURAGROUT, Sika Corporation's SikaGrout 212, or equal allowed in writing by the ENGINEER. The final contour of the grout shall be vertical and flush with the outer edge of the base plate, and shall not overlap the outer edge of the base plate. After the grout has hardened sufficiently for the application of a curing compound, a water-based curing compound shall be applied to the exposed grout surfaces. The curing compound shall be a water-based material such as MASTERKURE 200W from Master Builders, AQUA-CURE from Euclid Chemical Company, L & M CURE from L&M Construction Chemicals, Inc., or equal allowed in writing by the ENGINEER. After cleaning and painting, any separation between the base plate and the grout greater than 1/32 in. shall be filled with Sikaflex-1a from Sika Corporation, or equal allowed in writing by the ENGINEER.
- K. Nameplate: The nameplate shall be removed by carefully grinding off the welds. The weld remains shall be ground flush. A new mounting bracket shall be furnished and installed on the base cone door exterior by welding with continuous fillet welds as shown in Drawing NP. The location of the new nameplate mounting bracket shall be the same as the original location of the tank nameplate. The area behind the nameplate and the new mounting bracket shall be cleaned and painted in accordance with the exterior painting specifications. Any paint on the nameplate shall be removed by solvent cleaning or other methods which will not damage the surface of the nameplate. The nameplate shall be bolted to the mounting bracket with stainless steel stove bolts and nuts. The nameplate shall be protected from the application of paint on the exposed surface.
- L. Overflow Pipe Elastomeric Check Valve: The existing screen and the flap gate flanged and bolted to the termination of the overflow pipe shall be removed, and a new elastomeric check valve, Tideflex Series 35 or equal allowed in writing by the ENGINEER, shall be furnished and installed on the termination of the overflow pipe. The overflow pipe is an approximately 6 in. diameter pipe. The check valve shall be installed to allow the overflow effluent to be directed onto the existing concrete splash pad. Backup ring, bolts, and nuts used to secure the check valve to the end of the overflow pipe shall be stainless steel. The check valve shall be constructed from Hypalon.
- M. Aluminum Tank Vent and Steel Exhaust Fan Flange: The present roof vent shall be removed and a 24 in. diameter vent opening installed between roof rafters. A 1/4 in. thick cover plate shall be utilized to fill any void left in the roof plate from the removal of the existing vent. The 1/4 in. cover plate shall lap over the existing roof plates at least 1-1/2 in. but not more than 3 in., and be welded with 1/4 in. continuous fillet welds on the outside and inside. A new 24 in. diameter combination aluminum clog-resistant screened vent assembly and 24 in. diameter steel exhaust flange shall be installed in this opening. It shall conform to the dimensions and installation details shown in Drawing CRV, Sheets 1-5. The aluminum vent shall be removable from the steel manhole/exhaust flange to

provide a second means of access during cleaning and painting operations. The vent screen shall be supported to not produce a gap greater than 0.10 in. The vent shall have a minimum of 450 square inches of free vent area. The bolts and nuts utilized in the tank vent shall be of stainless steel or silicon-bronze material. The vent shall be designed to prevent clogging over and have provision for release of or prevention of any subsequent vacuum or pressure formed in the tank, prior to structural damage or deformation of the tank. The vent screens and pallets shall be designed to return to their original design locations without human effort after the release of any pressure or vacuum and the screens shall continue to provide screening of the vent during subsequent tank operation. The vent cap shall be designed with a vertical tamper resistant shield. The new exhaust flange assembly shall be welded with 3/16 in. fillet welds around its circumference on the outside and inside of the tank. The exhaust flange neck shall be welded to an annular eight bolt flange with continuous 1/4 in. fillet welds on the exterior and interior surfaces. Rough edges and weld spatter shall be ground smooth prior to cleaning to properly receive paint.

N. Ladder Safe-Climbing Devices: The existing ladder safe-climbing devices shall be removed before cleaning and painting operations begin. After the finish coat of paint has cured, new tubular galvanized steel safe-climbing devices shall be furnished and installed. The rail shall deflect less than 1/8 in. when subjected to the weight of a 250 pound person leaning back on the ladder, supported only by the device and the rail. In addition to the rail and mounting hardware; two harnesses (ANSI Class III full body harness), two sleeves or trolleys and two 5 ft long lanyards shall be furnished. The lanyards shall have a small hook on one end for attachment to a "D" ring on the harness. The other end of each lanyard shall have a large hook with a minimum 1-1/4 in. opening for quick hookup. The equipment shall be furnished by North Safety Products of Toronto, Ontario, Canada, 800-836-8006 (Saf-T-Climb tubular galvanized steel), or an equal allowed in writing by the ENGINEER. The CONTRACTOR shall submit catalog cuts, and installation, operation and maintenance instructions to the ENGINEER for written approval prior to construction. **Any necessary temporary protective devices for compliance with Federal OSHA requirements, all state and local safety regulations, and safe working practices shall be furnished and maintained by the CONTRACTOR.** North Safety Products part numbers have been listed below, but in each case an equal allowed in writing by the ENGINEER shall be permitted. The locations of the new ladder safe-climbing devices shall be as follows:

1. Access Tube Ladder: A new galvanized ladder safe-climbing device, (North Safety Products part #526-101-001), shall be installed in the access tube starting 36 in. above the platform floor and extending to the top of the ladder.
2. Interior Container Ladder: A new galvanized ladder safe-climbing device, (North Safety Products part #526-101-001), shall be installed on the interior container ladder starting 36 in. above the bottom of the ladder and extending to the top of the ladder.
3. Removable Extension Kit - Quick Release: New 54 in. long minimum galvanized steel removable extension kits, designed to be attached at the top of ascending or

descending rail sections for up-hole and below-level climbs, (North Safety Products part #803-101-054), shall be installed at the tops of the access tube ladder and interior container ladder. The extension kits shall allow the climber to swing around from the ladder to the roof to gain safe footing before disconnecting from the safe-climbing device and to engage the device and then swing around from the roof to the ladder before descending the ladder. The CONTRACTOR shall furnish and install a suitable storage apparatus at the top of the dry access tube for the removable extension device.

- O. Interior Dry Ladders' Rung Spacing Modification: The existing three support column ladders and the access tube ladder have inconsistent rung spacing at the splices between ladder sections ranging from 12-1/2 in. spacing to 13 in. spacing. The ladder sections shall be modified by the CONTRACTOR to provide the consistent 12 in. rung spacing and continuous side rails in accordance with OSHA 1910.27 Fixed Ladders. The ladder sections shall be secured to the adjacent structure with the existing steel bar brackets welded to the side rail and to the structure with complete structural welds. The splices in the ladder side rails shall be seal welded all around with full penetration butt-welds. **Any necessary temporary protective devices for compliance with Federal OSHA requirements, all state and local safety regulations, and safe working practices shall be furnished and maintained by the CONTRACTOR.**
- P. Interior Dry Platform Manholes: The existing oblong manholes in each of the four (4) interior dry platforms shall be modified to provide a 30 in. minimum head clearance between the center line of the ladder rung and the new manhole curb as shown in Drawing PM. A new curb and hinged manhole cover shall be installed at each manhole. The covers shall be equipped with cut outs for the interior dry ladders. The hinges for the cover shall be located on the side of the cover opposite the ladder above the platform so that the cover is away from the bottom of the ladder when opened.
- Q. Interior Dry Platform Handrails: The existing 2 in. x 2 in. x 1/4 in. angle handrails at each of the four (4) interior dry platforms shall be replaced with new 2 in. x 2 in. x 3/8 in. angle handrails. The handrail shall be located at least 42 in. above the platform floor like the existing handrail. Each handrail is approximately 11 ft 8 in. to 12 ft long. All safety railing intersections shall be seal welded all around.
- R. Access Tube Vent Screen: The CONTRACTOR shall remove the existing 8 x 8 mesh screen from the 8 in. diameter vent at the top of the access tube prior to the start of cleaning. The screen and supports shall remain separated during cleaning and painting, and curing. The screen shall be replaced by the CONTRACTOR with stainless steel material of 16 x 16 mesh and to eliminate gaps in the screen.
- S. Unplugged Coupling in Access Tube: The approximately 1-1/4 in. diameter coupling in the side of the access tube above the roof. A malleable iron pipe plug (hot-dipped galvanized with the threads wiped) shall be furnished and installed in the coupling after the completion of the painting. The threads on the plug shall be covered with teflon tape prior to threading into the coupling.

- T. Interior Rigging Openings: Approximately twelve (12) pipe openings shall be installed in the roof of the tank. The openings shall be installed in sufficient number and placement so as to allow complete and proper cleaning and painting of the shell and roof interior surfaces of the tank. The openings shall be installed at a maximum spacing of 20 ft on center and shall be located between roof rafters and above the top capacity level. The four (4) inner openings shall be located in place of the four (4) existing couplings in the roof. The pipe openings shall be 2-1/2 in. diameter schedule 80 extra strong (2.875 in. o.d. x 0.276 in. wall) minimum thickness carbon steel pipe. The openings shall be installed plumb, projecting a minimum of 4 in. above the roof exterior. The openings shall be welded all around with 3/16 in. minimum fillet size on the exterior and interior. Edges of the pipe exterior and the pipe interior shall be ground to 1/16 in. minimum radius. The openings shall be as shown in Drawing RO. Threaded steel pipe caps shall be furnished and installed after the completion of the painting. The threads on the pipes shall be covered with teflon tape or teflon paste prior to threading on the caps. The caps shall be tack welded to the pipes to restrict removal of the caps by vandals.
- U. Manhole Gasket: After the completion of the application and curing of the interior paint, a new 3/8 in. thick gasket shall be furnished and installed in the 24 in. diameter single-crab manhole in the bowl. The gasket shall be made from commercial grade neoprene, meeting ASTM D2000-86E, Type BC, with a 70A durometer rating, and black color.
- V. Base Cone Door: The base cone door shall be locked at the completion of the Work, using a padlock furnished by the OWNER.
- W. Remove Sections of Inlet/Outlet Pipe Insulation for Evaluation: The CONTRACTOR shall remove 3 sections of insulation from the inlet/outlet pipe as directed by the FIELD OBSERVER. After evaluation of these surfaces by the FIELD OBSERVER, a determination will be made by the OWNER to either clean and paint the pipe or to reinstall the insulation. The CONTRACTOR shall reinstall the 3 removed sections of insulation. Any items or sections of insulation damaged by the CONTRACTOR shall be repaired or replaced at no additional cost to the OWNER.
- X. Clean and Paint Inlet/Outlet Pipe and Replace Insulation: If **Alternate Bid Item 10** is selected by the OWNER, the CONTRACTOR shall remove and legally dispose the existing insulation on the inlet/outlet pipe and clean and paint the pipe in accordance with Section 09874 – Interior Dry Coating System. After curing of the coating on the inlet/outlet pipe, the 12 in. diameter inlet/outlet pipe shall be insulated with 2 in. urethane foam (Dow Trymer 2000 or equal) or 2 in. extruded polystyrene (blue board) pre-formed insulation. An All Service Jacket (ASJ) shall be wrapped around the insulation (silver side inward) to provide a vapor barrier. The bottom nine (9) ft of the inlet/outlet pipe insulation above the floor shall be covered with 0.016 aluminum jacketing with banding. All vertical and horizontal seams shall be sealed with sealer that comes with the insulation. The insulation and wrap shall be secured with 1/2 in. wide stainless steel bands located 6 in. from each end of a section of insulation, but no more than 2 ft apart. The insulation, wrap and bands are to be installed after the curing of the paint on the inlet/outlet pipe. **The cleaning and painting of the inlet/outlet pipe and replacement of the insulation shall be paid for by the lump sum price in Alternate Bid Item 10.**

- Y. Slip-Resistant Interior Dry Ladder Rungs: The existing 34 rung base cone ladder, 24 rung lower support column ladder, 24 rung intermediate support column ladder, 17 rung upper support column ladder, 7 rung ventilation manhole ladder, and 48 rung access tube ladder shall be washed to remove contaminants and shall be cleaned and coated in accordance with the Specifications. If the interior dry area is to be spot cleaned and spot coated in accordance with Section 09873 – Interior Dry Spot Coating System, the coating on the interior dry ladder rung surfaces shall be sanded or scarified to provide a proper surface profile in the existing coating for the adherence of an epoxy intermediate coat and an epoxy finish coat on the ladder rungs. If the interior dry area is to be completely cleaned and repainted in accordance with Section 09874 – Interior Dry Coating System, an additional coat of epoxy shall be applied to the interior dry ladder rungs for a three-coat epoxy system on the rungs. After proper curing of the spot or full prime coat on the ladder rungs the intermediate coat shall be applied to the ladders. While this intermediate coat is still wet a non-metallic abrasive shall be placed on the ladder rungs to create a slip-resistant surface. The abrasive used shall be a 3060 size or finer. After the intermediate coat has cured the finish coat shall be applied to the ladder rungs. **The modification of the interior dry ladder rungs to be slip-resistant shall be paid for by the lump sum price in Alternate Bid Item 11.**
- Z. Slip-Resistant Interior Container Ladder Rungs: After proper curing of the intermediate coat on the 38 rung interior container ladder a second intermediate coat shall be applied to the ladder rungs only. While this second intermediate coat is still wet a non-metallic abrasive shall be placed on the ladder rungs to create a slip-resistant surface. The abrasive used shall be a 3060 size or finer. **The modification of the interior dry ladder rungs to be slip-resistant shall be paid for by the lump sum price in Alternate Bid Item 12.**

### 3.2. UNANTICIPATED ADDITIONAL WORK (BID ITEM 5)

- A. It is felt that these specifications adequately describe the Work to be performed. If during the Work, it is found that additional Work is required and it is authorized in writing by the ENGINEER and OWNER, this Work shall be paid for per single man-hour, including all welding, equipment, normal rigging, labor, supplies, overhead, insurance, and profit. **The number of unanticipated additional work man-hours shall be paid for by the unit price in Bid Item 5.**

END OF SECTION

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13200-10

**SUMMARIZED TANK INFORMATION SHEET****“FAIRGROUNDS TANK”**

**ENGINEER:** Tank Industry Consultants  
**TANK OWNER:** Kentucky American Water  
**CAPACITY:** 400,000 gallons  
**DIAMETER:** approx. 55 ft  
**TYPE:** welded steel elevated single pedestal tank with rafter supported roof  
**ERECTION DATE:** 1988, Pitt-Des Moines, Inc.  
**CONTRACT NUMBER:** 58035  
**TANK LOCATION:** off of Ellis Drive in Owenton, KY

**PAINT SYSTEMS:** Generic Type (appeared to be the following)

**Exterior:** alkyd  
**Interior Dry:** epoxy  
**Interior Wet:** epoxy

**Atomic Absorption:**

	Cadmium		Chromium		Lead	
	mg/kg	percent	mg/kg	percent	mg/kg	percent
<b>Exterior</b>	<25	<0.0025%	<250	<0.025%	<250	<0.025%
<b>Interior Dry</b>	<25	<0.0025%	<250	<0.025%	<250	<0.025%
<b>Interior Wet</b>	<25	<0.0025%	<250	<0.025%	<250	<0.025%

Samples of the exterior, interior dry, and interior wet coatings were sent to a laboratory for atomic absorption analyses only to determine if there is lead, chromium, and cadmium present in the coating samples. To limit the damage to the existing coatings, only small areas were tested. This small number of samples and the difficulty of retrieving all primer from the steel profile may cause the tests performed to not accurately represent the total coating system. Variations in thickness, types of coatings applied, and the interim cleaning and painting operations will also affect the actual readings. The reliability of the results is also dependent on the amount of primer included in the sample. The Consumer Product Safety Commission specifies that an amount greater than 600 mg/kg (0.06%) lead is considered potentially hazardous.

**DISCLAIMER:** The information contained in this Summarized Tank Information Sheet is not considered technical in nature. Therefore, the Contractor is not entitled to rely on any information contained in such reports. Interpretation of this data is the responsibility of the Bidder. Such information is made available to the Bidder as a courtesy only. It is further agreed and understood that the Bidder or the Contractor will not use any information made available to him, or obtained by any examination made by him, in any manner as a basis or ground of claim or demand of any nature against the Owner or Engineer arising from or by reason of any variance which may exist between the information offered and the actual materials and structures encountered during the construction work.

**REFERENCES:** A complete scope of Work can be found in the Detailed Technical Specifications. Additional information about the tank may be found in the evaluation report (TIC 06.045.H310.12) dated March 22 and June 8, 2006. The information contained in this evaluation report is also not considered technical in nature.



APPLICATION FOR PAYMENT NO. \_\_\_\_\_

To: Kentucky American Water (OWNER)
From: \_\_\_\_\_ (CONTRACTOR)
Project: Repairing and Repainting One 400,000 Gallon Steel Elevated Tank, "Fairgrounds Tank," Owenton, KY
OWNER'S Contract No. \_\_\_\_\_ ENGINEER'S Project No. 0 . . . H310.12
For Work accomplished through the date of: \_\_\_\_\_

Table with 2 columns: Description and Amount. Rows include: 1. Original Contract Price, 2. Net Change by Change Orders and Written Amendments (+ or -), 3. Current Contract Price (1 plus 2), 4. Total Completed and stored to date, 5. Retainage (per Agreement) with sub-rows for % of completed Work and % of stored material, 6. Total completed and stored to date less retainage (4 minus 5), 7. Less previous Application for Payments, 8. DUE THIS APPLICATION (6 MINUS 7).

Accompanying Documentation:

CONTRACTOR'S Certification:

The undersigned CONTRACTOR certifies that (1) all previous progress payments received from OWNER on account of Work done under the Contract referred to above have been applied on account to discharge CONTRACTOR'S legitimate obligations incurred in connection with Work covered by prior Applications for Payment numbered 1 through \_\_\_\_\_ inclusive; (2) title of all Work, materials, and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all Liens, security interests, and encumbrances (except such as are covered by a Bond acceptable to OWNER indemnifying OWNER against any such Lien, security interest or encumbrance); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective.

Dated \_\_\_\_\_ CONTRACTOR

By: \_\_\_\_\_

State of \_\_\_\_\_
County of \_\_\_\_\_
Subscribed and sworn to before me this \_\_\_\_\_
day of \_\_\_\_\_

Notary Public
My Commission expires: \_\_\_\_\_

Payment of the above AMOUNT DUE THIS APPLICATION is recommended.

Dated \_\_\_\_\_ ENGINEER

By: \_\_\_\_\_



## APPLICATION FOR PAYMENT

### INSTRUCTIONS

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#### A. GENERAL INFORMATION

The sample form of Schedule of Values is intended as a guide only. Many projects require a more extensive form with space for numerous items, descriptions of Change Orders, identification of variable quantity adjustments, summary of materials and equipment stored at the site, and other information. It is expected that a separate form will be developed by Engineer and Contractor at the time Contractor's Schedule of Values is finalized. Note also that the format for retainage must be changed if the Contract permits (or the law provides), and Contractor elects to deposit securities in lieu of retainage. Refer to Article 14 of the General Conditions for provisions concerning payments to Contractor.

#### B. COMPLETING THE FORM

The Schedule of Values, submitted and reviewed as provided in paragraphs 2.05.B.3 and 2.07 of the General Conditions, should be reproduced as appropriate in the space indicated on the Application for Payment form. Note that the cost of materials and equipment is often listed separately from the cost of installation. Also, note that each Unit Price is deemed to include Contractor's overhead and profit.

All Change Orders affecting the Contract Price should be identified and included in the Schedule of Values as required for progress payments.

The form is suitable for use in the Final Application for Payment as well as for Progress Payments; however, the required accompanying documentation is usually more extensive for final payment. All accompanying documentation should be identified in the space provided on the form.

#### C. LEGAL REVIEW

All accompanying documentation of a legal nature, such as Lien waivers, should be reviewed by an attorney, and Engineer should so advise Owner.

Project: "Fairgrounds Tank," Kentucky American Water      TIC Job Number: 0      JH310.12      Application No.      Date:      Period From      to

Description of Work	Unit Price	Estimated Quantity	Scheduled Value	Work Completed		Total Completed & Stored to Date	Balance to Finish	Retainage
				Previous Application	This Period			
1.	\$		\$	\$	\$	\$	\$	\$
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
21.								
22.								
23.								
24.								
25.								
26.								
27.								
28.								
29.								
30.								
<b>TOTAL</b>			\$	\$	\$	\$	\$	\$

Note: Total Schedule of Values Amount should equal the current Contract Price.



"Fairgrounds Tank"

Owenton, Kentucky

**SUBMITTAL CHECK LIST**

TIC 0\_.\_.H310.12

<u>Sub. No.</u>	<u>Item</u>	<u>Submit By</u>	<u>Date Received</u>	<u>Date Reviewed</u>	<u>Previous Sub. No.</u>	<u>Status</u>
1.	Proposed Method of Containment w/ P.E. Stamp	CD + 15 days				
2.	Details of Reinforcing Pads Between Tank and Attachments	CD + 15 days				
3.	Name of Competent Person	CD + 15 days				
4.	A letter (on company letterhead) from the Contractor stating/certifying that the Contractor's Competent Person(S) has/have received training in accordance with local, state, and federal regulations	CD + 15 days				
5.	Documentation of Training for Support Personnel	CD + 15 days				
6.	Welder(s) Certification (submitted at site)	prior to welding				
7.	Work Safety Program	CD + 15 days				
8.	Personnel Air Monitoring Program	CD + 15 days				
9.	Confined Space Entry Procedure	CD + 15 days				
10.	Traffic Control Plan	CD + 15 days				
11.	Public Safety Plan	CD + 15 days				
12.	Bar Chart or Progress Schedule	CD + 15 days				
13.	Schedule of Values	CD + 15 days				
14.	Submittal for Times of Work	CD + 15 days				
15.	Descriptive written plan concerning how abrasive and/or paint damage to automobiles and property will be handled, including a process for quick removal of the abrasive or paint, and who will do the Work	CD + 15 days				
16.	Details of repairs if <u>different</u> from drawings	CD + 20 days				
17.	Exterior Prime Coat - Supplier, Type, PDS	CD + 20 days				
18.	Exterior Intermediate Coat - Supplier, Type, PDS	CD + 20 days				
19.	Exterior Finish Coat - Supplier, Type, PDS	CD + 20 days				
20.	Exterior Intermediate Color and Finish Color	CD + 20 days				
21.	Interior Dry Prime Coat - Supplier, Type, PDS					
22.	Interior Dry Finish Coat - Supplier, Type, PDS					
23.	Interior Wet Prime Coat - Supplier, Type, PDS	CD + 20 days				
24.	Interior Wet Intermediate Coat - Supplier, Type, PDS	CD + 20 days				
25.	Interior Wet Finish Coat - Supplier, Type, PDS	CD + 20 days				
26.	Concrete First Coat - Supplier, Type, PDS	CD + 20 days				
27.	Concrete Second Coat - Supplier, Type, PDS	CD + 20 days				
28.	Inaccessible Area Prime Coat - Supplier, Type, PDS	CD + 20 days				
29.	Seam Sealer - Supplier, Type, PDS	CD + 20 days				
30.	Flexible Sealant - Supplier, Type, PDS	CD + 20 days				
31.	Solventless, Underwater-Curing Epoxy - Supplier, Type, PDS	CD + 20 days				
32.	Thinners - Supplier, Type, MSDS	CD + 20 days				
33.	Disinfectant - Supplier, Type, MSDS	CD + 20 days				
34.	Abrasives - Supplier, Type, MSDS, and Size	CD + 20 days				
35.	Abrasives - letter from coating manufacturer's HQ stating the Resulting Abrasive Profile is acceptable	CD + 20 days				
36.	Concrete Repair Material - Supplier, Type, MSDS	CD + 20 days				
37.	Grout - Supplier, Type, MSDS	CD + 20 days				
38.	Waste Hauler Spill Contingency Plan	CD + 20 days				
39.	Plan for Forced Ventilation	CD + 20 days				

Status Abbreviations \*\* NEN = No Exceptions Noted, MCN = Make Corrections Noted, R&R = Revise & Resubmit, REJ = Rejected, See Comments,  
 NAR = No Action Required by Engineer or Owner  
 CD = Contract Date --- All Submittals Shall be Received Prior to Contractor Starting Work

"Fairgrounds Tank"

Owenton, Kentucky

**SUBMITTAL CHECK LIST**

TIC 0 . . . . .H310.12

<u>Sub. No.</u>	<u>Item</u>	<u>Submit By</u>	<u>Date Received</u>	<u>Date Reviewed</u>	<u>Previous Sub. No.</u>	<u>Status</u>
40.	Compliance with ANSI/NSF Standard 61 (if not stated on PDS)	CD + 20 days				
41.	Certification from manufacturer that Alternate Coating Materials Meet the Specifications	CD + 20 days				
42.	Certification from manufacturer that all coating materials contain less than 0.06% by weight of lead (or any lead compounds), cadmium, and chromium in the cured coating for each coat applied	CD + 20 days				
43.	Catalog Cuts, Installation, and Operation Instructions of Ladder Safe-Climbing Device	CD + 20 days				
44.	Steel Grit Total Lead Tests	CD + 20 days				
45.	Certification from coating manufacturer that the interior wet coating has cured such that it is ready for immersion service	prior to filling tank				

Status Abbreviations \*\* NEN = No Exceptions Noted, MCN = Make Corrections Noted, R&R = Revise & Resubmit, REJ = Rejected, See Comments,  
 NAR = No Action Required by Engineer or Owner  
 CD = Contract Date --- All Submittals Shall be Received Prior to Contractor Starting Work

**Submittal Cover Sheet**

**Fairgrounds Tank**

\_\_\_\_\_  
(Name of Contractor)

Kentucky American Water  
2300 Richmond Road  
Lexington, Kentucky 40502

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(City, State Zip)

Tank Industry Consultants  
7740 West New York Street  
Indianapolis, Indiana 46214

4 Sets of Each Submittal Included  
1 set of reviewed submittals returned to CONTRACTOR  
1 set of reviewed submittals forwarded to OWNER

TIC Project No.: 0\_\_\_\_.\_\_\_\_.H310.12

**Submittal**

No.                      Date

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**SUBMITTAL**

Checklist Item No.	Specification Section	Description
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**Review is for General Compliance with Contract Documents and Specifications.  
No Responsibility is Assumed for Correctness of Dimensions or Details.**

- \_\_\_\_\_ **No Exceptions Noted**
- \_\_\_\_\_ **No Action Required by Engineer or Owner**
- \_\_\_\_\_ **Make Corrections Noted**
- \_\_\_\_\_ **Revise & Resubmit**
- \_\_\_\_\_ **Rejected – See Comments**

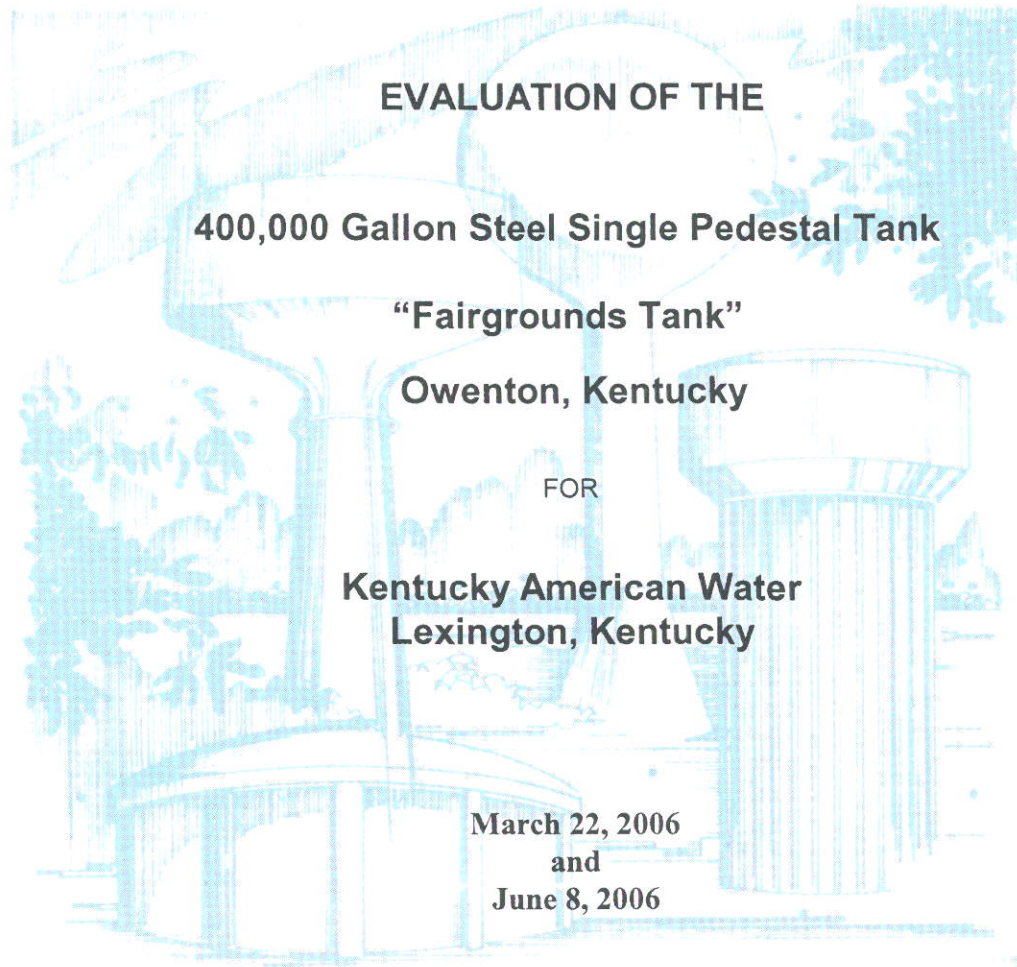
**Tank Industry Consultants**

By: \_\_\_\_\_ Date: \_\_\_\_\_

SCS



# TANK INDUSTRY CONSULTANTS



**EVALUATION OF THE**

**400,000 Gallon Steel Single Pedestal Tank**

**“Fairgrounds Tank”**

**Owenton, Kentucky**

**FOR**

**Kentucky American Water  
Lexington, Kentucky**

**March 22, 2006**

**and**

**June 8, 2006**

TM

06.045.H310.12



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June 14, 2006

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**SUBJECT:**

The subject of this report is the field evaluation of the 400,000 gallon steel single pedestal tank in Owenton, Kentucky. The tank was owned by Kentucky American Water and was known as the "Fairgrounds Tank." The field evaluation was performed on March 22 and June 8, 2006, by Gregory P. Cannon and Harold H. Knight of Tank Industry Consultants. The Owner's representative on the site at the time of the field evaluation was Mr. Kevin Kruchinski. The single pedestal tank was of welded steel construction. According to information on the tank nameplate, the tank was built in 1984 by Pitt-Des Moines, Inc., under contract number 58035, and had a capacity of 400,000 gallons. The tank nameplate also stated that the container diameter was 55 ft.

**OBJECTIVE:**

The purpose of this evaluation was to determine the condition of the tank interior wet, interior dry, exterior, exposed foundation, and accessories. The purpose of this report is to present the findings of the evaluation and to make recommendations for recoating, repairing, corrosion protection, and maintenance. Budget estimates for the work, anticipated life of the coating and the structure, and the replacement cost of the tank are also included.

**AUTHORIZATION:**

This washout, evaluation, disinfection, and report were authorized in the contract between American Water Services and Tank Industry Consultants for the period November 19, 2003 through December 31, 2008.

## SUMMARY:

**Exterior Coating:** The exterior coating system was in very poor condition and not providing adequate corrosion protection. Tank Industry Consultants believes that the exterior surfaces should be painted within the next year from a corrosion standpoint. Although the existing coating had fair adhesion, due to the extent of failure of the existing exterior coating, much of the exterior will require complete cleaning and repainting, therefore, topcoating is not the recommended option.

**Interior Dry Coating:** The interior dry coating system appeared to be in adequate overall condition and providing adequate corrosion protection. Tank Industry Consultants believes that the interior dry surfaces should not need to be repainted within the next 4 to 5 years from a corrosion standpoint. However, the interior dry surfaces should be re-evaluated in 3 to 4 years to determine a more precise recoating schedule. Due to the very good adhesion of the existing interior dry coating system, spot cleaning and spot coating will be a viable option if performed before the existing coating adhesion deteriorates further. The interior dry coating system should be evaluated immediately prior to preparing specifications to determine if the coating adhesion is still adequate to accept a topcoat.

**Interior Wet Coating:** The interior wet coating system was in very poor overall condition as widespread corrosion was noted. Tank Industry Consultants recommends that the interior surfaces of this tank should be recoated within the next year due to the extent of coating failure and corrosion noted. It is recommended that when the interior is completely cleaned and repainted, an epoxy coating system should be used.

**ANSI/OSHA and Safety-Related Deficiencies:** There were OSHA and safety-related deficiencies on this tank. These deficiencies included:

- ◆ the interior dry ladder rungs were not of slip-resistant design,
- ◆ conduits and cables were attached to the base cone, support column, and access tube ladders which could interfere with the climber's use of the side rails,
- ◆ the support column, ventilation manhole, and access tube ladder side rails were not precisely large enough,
- ◆ the support column, ventilation manhole, and access tube ladder head clearances were not large enough,
- ◆ the support column and access tube ladder rungs were not spaced at consistent 12 in. intervals,
- ◆ the handrails on the interior dry platforms were not precisely large enough,
- ◆ the interior dry platform access openings were not equipped with curbs or covers,
- ◆ the rust on the container ladder safe-climbing device will likely interfere with its operation,
- ◆ the container ladder rungs were not of slip-resistant design, and
- ◆ the rust tubercles on the interior container ladder could cut the climbers hands.

If the Owner wishes to fully comply with OSHA and safety-related standards, it is recommended that these deficiencies be rectified.

**Sanitary, AWWA, and Operational Deficiencies:** There were sanitary and operating deficiencies on this tank as well. These deficiencies included:

- ◆ the overflow pipe screening was torn which could allow the ingress of insects into the tank,
- ◆ the base cone door was not locked prior to or after this field evaluation,

- ◆ an unplugged coupling was located in the access tube projection above the roof,
- ◆ gaps were noted in the access tube manhole vent screening,
- ◆ the access tube roof manhole was not locked, and
- ◆ the inlet/outlet pipe was not able to drain the tank.

These deficiencies should be corrected.

The safety-related, sanitary, and operating deficiencies listed above are not intended to be a complete list of deficiencies on this tank. The Owner should refer to the complete report text and accompanying photographs for a complete account of all observed deficiencies.

This evaluation and the reporting of the condition of this tank do not warrant the original structural condition of the tank or any of the original design for seismic loadings. Likewise, recommendations for this tank do not include modifications which may be required for compliance with present structural codes.

## **PHOTOGRAPHS:**

Color photographs were taken of the visible portions of the foundation, the tank interior wet, interior dry, and exterior and are included as a part of this report. The significant photographs are keyed to the observations.

## **NOMENCLATURE:**

The terms used in describing the various components of steel water tanks are unique to the industry. In fact, the terms vary from firm to firm and from person to person. In an attempt to define the terms used in this report, a sketch of the general type of tank covered is included at the end of the narrative portion of this report. **Warning: Some appurtenances on this tank may be referred to as erection or rigging attachments, lugs, or brackets. This does not mean that they are safe for rigging. Each attachment for each tank should be evaluated on an individual basis by a structural engineer or an experienced rigger before being used. These devices may have been intended for only the original erectors and painters to use with specialized equipment.**

## **ADHESION TESTS:**

All adhesion tests performed during this evaluation were done in general accordance with ASTM D3359. The results are reported herein using the ASTM scale. The ASTM scale is a relative scale to rate adhesion from 0 to 5 with 5 being the best. A table of adhesion test results classification is included with this report following the sketch of the tank.

## **HEAVY METALS TESTS:**

Samples of the exterior, interior dry, and interior wet coating systems were sent to a laboratory for atomic absorption analyses. The test results were as follows:

	Cadmium		Chromium		Lead	
	mg/kg	Percent	mg/kg	percent	mg/kg	percent
Exterior	<25	<0.0025%	<250	<0.025%	<250	<0.025%
Interior Dry	<25	<0.0025%	<250	<0.025%	<250	<0.025%
Interior Wet	<25	<0.0025%	<250	<0.025%	<250	<0.025%

Tank Industry Consultants performs this test only to determine if there is lead, chromium or cadmium present in the coating samples. To limit damage to the existing coating, only small areas were tested. The small number of samples taken and the difficulty of retrieving all primer from the steel profile may cause the tests performed to not accurately represent the total coating system. Variations in thickness, types of coatings applied, and the interim cleaning and painting operations will also affect the actual readings. The reliability of the results is also dependent on the amount of primer included in the sample. The Consumer Product Safety Commission specifies that an amount greater than 0.27% lead is considered potentially hazardous. Additional testing to determine the amount of leachable contaminants present in the spent cleaning debris will need to be performed following cleaning operations at the time of repainting. Results from the laboratory analysis are included following the adhesion tables.

## ULTRASONIC THICKNESS MEASUREMENTS:

Roof:	(all readings were taken through coating)
Cap:	0.235 in. to 0.237 in.
Finger:	0.227 in. to 0.230 in.
Shell:	
Top Ring:	0.278 in. to 0.281 in.
Bottom Ring:	0.295 in. to 0.299 in.
Bowl:	
Inner Cone:	0.506 in. to 0.509 in.
Outer Cone:	0.452 in. to 0.457 in.
Access Tube:	
Top:	0.306 in. to 0.308 in.
Bottom:	0.407 in. to 0.409 in.
Platforms:	
Top:	0.268 in. to 0.270 in.
Bottom:	0.312 in. to 0.315 in.
Support Column:	
Ring #8:	0.620 in. to 0.622 in.
Ring #7:	0.633 in. to 0.635 in.
Ring #6:	0.691 in. to 0.693 in.
Ring #5:	0.706 in. to 0.709 in.
Ring #4:	0.714 in. to 0.717 in.
Ring #3:	0.725 in. to 0.728 in.
Ring #2:	0.762 in. to 0.765 in.
Ring #1:	0.739 in. to 0.746 in.

400,000 Gallon Single Pedestal, "Fairgrounds Tank"  
Kentucky American Water, Owenton, Kentucky

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Inlet/Outlet Pipe: 0.516 in. to 0.519 in.  
Base Cone:  
Ring #4: 0.755 in. to 0.759 in.  
Ring #3: 0.577 in. to 0.580 in.  
Ring #2: 0.561 in. to 0.563 in.  
Ring #1: 0.550 in. to 0.554 in., bottom  
Base Plate: 0.760 in. to 0.764 in.

## **OBSERVATIONS:**

### **A. Foundation and Site**

#### **SITE:**

Size: approx. 80 ft x 85 ft

#### **Fence:**

Type: chain-link w/ 3 strands of barbed wire

Height: approx. 7 ft

#### **Gate:**

Location: west side of site

Width: 15 ft 6 in.

Locked: yes

#### **Nearest Structures:**

Type: residence

Direction: east

Distance: approx. 125 ft

Type: building

Direction: south

Distance: approx. 125 ft

Type: factory

Direction: southwest

Distance: approx. 750 ft

#### **Nearest Overhead Power Lines:**

Direction: east

Distance: approx. 65 ft

#### **FOUNDATION:**

##### **Projection Above Grade:**

North: 7 in. to 9-1/2 in.

South: 4-1/2 in. to 5-1/2 in.

East: 4-1/2 in. to 5-1/2 in.

West: 5 in. to 7 in.

Grout: 1 in. to 1-1/4 in.

Sealant: none visible

1. **Site Location:** The tank was located on Ellis Drive in Owenton, Kentucky. Open fields, a few residences, and a factory were located around the tank site. The nearest overhead power lines were located east of the site. (See photos 3-5)

2. **Site Conditions:** The small-sized tank site was covered with grass. The tank site was enclosed by a chain-link fence topped with barbed wire. The fence was equipped with a locked gate located on the west side of the site. Dead vegetation was noted around the overflow pipe concrete splash pad. (See photos 1-2, 6, 10-11)

3. **Foundation:** The tank foundation appeared to be a concrete ringwall. The foundation appeared to be in adequate overall condition. A few minor cracks and chips were noted. Small, shallow holes were observed in the surface of the foundation. The top of the foundation did not consistently exhibit the recommended projection of 6 in. to 12 in. above grade. Grass clippings had accumulated on the foundation. No coating was visible on the exposed concrete surfaces at the time of this field evaluation except for overspray from the base cone coating. (See photos 7-9)

4. **Grout:** There was a pad of grout between the base plate and the top of the foundation. The grout appeared to be in adequate condition as no significant deficiencies were noted. No sealant was visible at the grout-to-base plate interface. (See photos 7-9)

## **B. Exterior Pedestal and Container**

### DESCRIPTION:

Construction: welded

Type: single pedestal

### NAMEPLATE:

Location: on the base cone access door

**AWWA D100 1984**  
**CONTRACT NO. 58035**  
**YEAR COMPLETED 1988**  
**NOMINAL DIAMETER 55'0"**  
**NOMINAL CAPACITY 400 M. GAL**  
**MATERIAL A36**  
**FABRICATED BY PITT-DES MOINES, INC.**  
**ERECTED BY HYDROSTORAGE, INC.**

### BASE PLATE PROJECTION:

Interior: 5-1/2 in. to 6-1/4 in.

Exterior: 5-1/4 in. to 6 in.

**ANCHOR BOLTS:**

Number: 10

Size: 1-1/2 in. diameter

Chairs: none

Gussets:

Width: 6 in.

Height: 13-1/2 in.

Side Plates: 2 in. to 6-1/4 in. x 2 in. to 12 in. x 1/2 in., thick

Bottom Plate: 6 in. x 7-1/2 in. x 1/4 in., thick

**BASE CONE ACCESS DOOR:**

Size: approx. 3 ft x 7 ft

Locked: no

**OVERFLOW PIPE:**

Size: 6 in. diameter

Air Break: 13-1/2 in.

Protective Screen: 16 x 16 mesh

Flap Gate: yes

Projection: 12 ft 9 in. from base cone

Concrete Splash Pad: approx. 4 ft x 5 ft

**PAINTER'S MANHOLE:**

Size: 22-1/4 in. diameter

Neck: 14-1/2 in. x 1 in.

Hinged: yes, exterior

Locked: no, pinned

**PAINTER'S RINGS:**

Number: 3

Location: 15 in. below painter's manhole, above painter's manhole, and on transition cone

Size: 3 in. x 3 in. x 1/4 in., angle

Brackets:

Size: 3 in. x 3 in. x 3/8 in., triangular gussets and 4 in. x 3/8 in., flat bars

Spacing: 32 in.

Hand Holds:

Number: 5

Size: 1-1/2 in. x 1/4 in., flat bar

Width: 5 in.

Hand Clearance: 2 in.



**SIGNS: "OWENTON"**

Number: 2  
Color: black  
Locations: north and south sides of shell  
Height: 6 ft 8 in. tall letters  
Letter Width: 4 ft  
Brush Stroke: 1 ft

**ROOF OPENINGS:****Access Tube Manhole:**

Size: 24 in. diameter  
Type: hinged  
Curb: 9 in. x 1/4 in., thick  
Welded: exterior only  
Overlap: 2 in. x 3/16 in., thick  
Locked: no  
Vent:  
Location: manhole cover  
Diameter: 8 in.  
Height: 6 in.  
Screening: 8 x 8 mesh

**Container Roof Manhole:**

Size: 24 in. square  
Type: hinged  
Curb: 7-1/2 in. x 1/4 in., thick  
Welded: exterior and interior  
Overlap: 2 in. x 3/16 in., thick  
Locked: yes

**Roof Vent:**

Type: clog-resistant vent  
Neck Height: 6-1/4 in.  
Neck Diameter: 20 in.  
Flange: 4-1/4 in. projection  
Bolts:  
Number: 8  
Size: 3/4 in. diameter  
Screen:  
Orientation: vertical  
Size: 16 x 16 mesh  
Cover: 26 in. diameter

EXTERIOR COATING AND METAL CONDITION:

	Coating Thickness		Approx. % Failure to		Adhesion	Metal Loss	
	Range	Typ.	Underlying Coating	Rust		Typical	Deepest
Base Cone	2 mils to 6 mils	3.5 mils	25%	3%	3 T	Neg.	Neg.
Support Column	3.5 mils to 9.5 mils	5 mils	3%	5%	3 T	Neg.	Neg.
Bowl	4.5 mils to 9.5 mils	6 mils	10%	< 1%	3 T	Neg.	Neg.
Shell	3.5 mils to 8 mils	5 mils	15%	3%	3 T	Neg.	Neg.
Roof	2.5 mils to 10 mils	5.5 mils	3%	4%	3 S	1/32 in.	1/16 in.

Key to Table

Adhesion	5 (very good)	T = Topcoat to Underlying Coating	Neg. = negligible
	4 (good)		
	3 (fair)	S = Primer to Steel	
	2 (poor)		
	1 (very poor)		
	0 (very poor)		

1. **Exterior Coating Condition:** The coating on the exterior of the container and pedestal was in very poor overall condition as widespread corrosion and topcoat failures were noted. The exterior coating exhibited fair adhesion to the underlying coating and steel.

2. **Base Plate:** The visible portions of the base plate appeared to be in fair overall condition as topcoating failures were noted. Grass clippings had accumulated on the base plate in areas. (See photos 7-9)

3. **Anchor Bolts:** The base cone was equipped with 10 anchor bolts and gussets. The topcoating had peeled in areas on the gussets, and corrosion was noted on some of the anchor bolts and nuts. Grass clippings had collected around the anchor bolts and between the gusset plates. (See photos 7-9)

4. **Base Cone Condition: There was a sanitary deficiency noted: the base cone door was not locked prior to or after this field evaluation.** The base cone was of welded steel construction and appeared to be in nearly its original structural condition at the time of the field evaluation. The coating appeared to be in poor condition as multiple spots of corrosion and topcoat failure were noted. The coating had chalked. The base cone coating had fair adhesion to the underlying coating. The base cone was equipped with an access door which was not locked prior to or after this field evaluation. The tank nameplate was mounted on the base cone access door. Corrosion was noted on the door around the nameplate. (See photos 12-16)

5. **Support Column Condition:** The support column appeared to be in nearly its original structural condition at the time of the field evaluation. The coating appeared to be in poor condition as multiple spots of corrosion and topcoat failure were noted. The support column coating had fair adhesion to the underlying coating. An antenna was located near the base of the support column on the southeast side of the tank. A painter's manhole and three painter's rings were located near the top of the support column and on the transition cone. The painter's manhole cover was hinged on the exterior of the tank, and was pinned shut although the pin was missing a nut. One of the painter's rings was located below the painter's manhole, one was located on the support column above the painter's manhole, and one was located on the transition cone. Four hand holds were located between the top two painter's rings, and one hand hold was located above the top ring. **It is the opinion of Tank Industry Consultants that the painter's rings should not be used for rigging purposes or personnel access.** (See photos 13-18)

6. **Overflow Pipe:** There was an AWWA and sanitary deficiency noted: **the overflow pipe screening was torn which could allow the ingress of insects into the tank.** The overflow pipe exited just above the bottom of the base cone and projecting over a concrete block before discharging above a concrete splash pad. Large amounts of dead vegetation were noted on and around the splash pad. Corrosion was noted on the pipe. The discharge was equipped with an operable flap gate, but the screening was torn which could allow the ingress of insects into the tank. (See photos 10-11)

7. **Bowl Condition:** The bowl coating was in poor condition as multiple spots of corrosion and topcoat failure were noted. The bowl coating had fair adhesion to the underlying coating. (See photos 19-21)

8. **Shell Condition:** The contour of the tank shell was adequate as no significant discontinuities were observed at the time of this field evaluation. The coating appeared to be in poor condition as multiple spots of corrosion and topcoat failure were noted. The coating had chalked and faded significantly. The shell coating had fair adhesion to the underlying coating. Two signs were located on the north and south sides of the shell which read, "OWENTON." The signs were black-colored and in very poor condition as they had faded extensively. (See photos 20-22)

9. **Roof Condition:** The contour of the roof was irregular as water had accumulated near the perimeter of the roof. Significant corrosion was noted in the areas of accumulated water. Several large spots of corrosion and topcoat failure were noted. The coating had chalked and faded. The corrosion had allowed pitting to occur. The pitting typically measured 1/32 in. deep, but pitting up to 1/16 in. deep was observed. The coating on the roof had fair adhesion to the steel. Four plugged couplings were located near the center of the roof. An antenna was mounted on the roof between the access tube roof manhole and the clog-resistant roof vent. (See photos 23-25, 28)

10. **Roof Manholes:** There were sanitary, AWWA, and operational deficiencies noted: **(1) an unplugged coupling was located in the access tube projection above the roof, (2) gaps were noted in the access tube vent screening, and (3) the access tube roof manhole was not locked.** The roof was equipped with one access tube manhole and one container manhole. Both manholes were equipped with hinged covers. The access tube manhole was welded on the exterior only while the container roof manhole was welded on the exterior and interior. An antenna cable penetrated through the top of the access tube adjacent to the manhole, and an unplugged coupling was located in the side of the access tube penetration just above the roof. A vent was located in the cover of the access tube manhole cover. The screening on the vent was equipped with vertical shields, but gaps were noted in the screen. Corrosion and topcoat failures were noted on both the manhole surfaces. Only the container roof manhole was locked prior to and after this evaluation. (See photos 26-29)

11. **Roof Vent:** The roof was equipped with what appeared to be a clog-resistant vent located in the roof. The proper operation of the vent was not verified at the time of the field evaluation although the screening appeared to be in good overall condition. Surface rust and topcoat failures were noted on the steel vent surfaces. The screening was equipped with vertical shields. (See photos 28, 30-31)

## C. Interior Dry

### BASE CONE:

Size: approx. 27 ft diameter

Floor: sand

### INTERIOR DRY LIGHTING:

Location: 2 in base cone, 3 in support column, and 2 in access tube

Type: incandescent, single-globe,

Protective Globes: yes

Protective Cages: yes

Operational: yes, except 1 in base cone

### INLET/OUTLET PIPE:

Size: 12 in. diameter

Insulation: foam

Brackets:

Size: 16 in. x 3/8 in., flat bar

U-Bolts: 5/8 in. diameter

Construction: welded to support column, U-bolted to pipe

### OVERFLOW PIPE BRACKETS:

Base Cone: 6 in. x 3/8 in., flat bar

Support Column: 10 in. x 3/8 in., flat bar

### BASE CONE LADDER:

Number of Rungs: 34

Distance Above Base Cone Floor: 15-1/2 in.

Width: 16 in.

Side Rails: 6 in. x 1-7/8 in., channel

Rung Size: 3/4 in., diameter, smooth

Spacing: 12 in. on center

Toe Room: greater than 7 in.

Head Clearance: 30 in.

Brackets:

Construction: welded

Size: 3 in. x 3 in. x 1/4 in., angle welded to 4 in. x 3/8 in., flat bar and 2-1/2 in. x 3/8 in.

Spacing: 5 ft 6 in. and 11 ft

Safe-Climbing Device: none

**Safety Cage:**

Depth: 27-1/2 in.

Width: 28-1/2 in.

**Vertical Bars:**

Size: 1-1/2 in x 1/4 in., flat bar

Spacing: 9-1/4 in.

**Horizontal Bars:**

Size: 2 in. x 1/4 in., flat bar and 3 in. x 1/4 in., flat bar

Spacing: 4 ft

Flared: yes

**LOWER PLATFORMS:**

Number: 4

Size: approx. 5 ft x 11 ft 8 in.

Supports: 3 in. x 2 in. x 1/4 in., angle and 6 in. x 1-7/8 in., channel

Locations: support column rings #1, #3, and #6

**Safety Railing:****Handrail:**

Height: 42 in.

Size: 2 in. x 2 in. x 1/4 in., angle

Uprights: 2-1/2 in. x 2-1/2 in. x 1/4 in., angle

Mid-Rail: 2-1/2 in. x 3/8 in., flat bar

**Toe Bar:**

Size: 4 in. x 1/4 in., flat bar

Height Above Platform: 4-1/4 in.

**Access Opening:**

Size: 30 in. x 42 in.

Curb: no

Cover: no

**SUPPORT COLUMN:**

Diameter: approx. 12 ft

**Stiffeners:**

Locations: support column rings #1, #4, and #7

Size: 3 in. x 2 in. x 1/4 in., angle

Construction: intermittently welded

**SUPPORT COLUMN LADDERS:**

Number of Sections: 3  
Number of Rungs: 24, 24, and 17  
Width: 16 in.  
Side Rails: 2 in. x 3/8 in., flat bar  
Rung Size: 3/4 in. diameter, smooth  
Spacing: 12 in., 12-1/2 in., and 12-3/4 in. on center  
Toe Room: 8-1/2 in.  
Head Clearance: 29-3/4 in.  
Brackets:  
    Construction: welded  
    Size: 2-1/2 in. x 3/8 in., flat bar x 9 in. long  
    Spacing: approx. 4 ft and 8 ft  
Safe-Climbing Device: none

**TOP PLATFORM:**

Location: top of support column  
Size: approx. 12 ft diameter  
Supports: 3 in. x 2 in. x 1/4 in., angle and 6 in. x 1-7/8 in., channel  
Drain: 1-1/2 in. hole  
Access Opening:  
    Size: 30 in. x 36 in.  
    Curb: no  
    Cover: no

**VENTILATION MANHOLE LADDER:**

Number of Rungs: 7  
Width: 16 in.  
Side Rails: 2 in. x 3/8 in., flat bar  
Rung Size: 3/4 in. diameter, smooth  
Spacing: 12 in. on center  
Toe Room: 19-3/4 in.  
Head Clearance: approx. 20 in.  
Brackets:  
    Construction: welded  
    Size: 2-1/2 in. x 3/8 in., flat bar  
    Locations: top and bowl of ladder  
Safe-Climbing Device: none

**VENTILATION MANHOLE:**

Location: bowl  
Size: 24 in. diameter  
Cover: approx. 26-1/2 in. diameter x 3/8 in. thick  
Bolt: 1 in. diameter x 10-1/2 in. thick

**ACCESS TUBE:**

Size: approx. 4 ft diameter

Stiffener:

Location: near top of access tube

Size: 3 in. x 3/8 in., flat bar

Construction: intermittently welded

**ACCESS TUBE LADDER:**

Number of Rungs: 48

Width: 16 in.

Side Rails: 2 in. x 3/8 in., flat bar

Rung Size: 3/4 in. diameter, smooth

Spacing: 12 in. and 13 in. on center

Toe Room: 9-1/2 in.

Head Clearance: 21-1/2 in.

Brackets:

Construction: welded

Size: 2-1/2 in. x 3/8 in., flat bar x 9 in. long

Spacing: approx. 2 ft, 8 ft, and 10 ft

Safe-Climbing Device: 3/8 in. diameter cable-type

**INTERIOR DRY COATING AND METAL CONDITION:**

	Coating Thickness		Approx. % Failure to		Adhesion	Metal Loss	
	Range	Typical	Primer	Rust		Typical	Deepest
Base Cone	2 mils to 6 mils	3.5 mils	Neg.	< 1%	5 S	Neg.	Neg.
Support Column	3 mils to 9 mils	5 mils	Neg.	< 1/2%	5 S	Neg.	Neg.
Dry Bowl	3 mils to 7.5 mils	4.5 mils	Neg.	< 1/2%	5 S	Neg.	Neg.
Access Tube	4.5 mils to 7.5 mils	5.5 mils	Neg.	< 1%	5 S	Neg.	Neg.

Key to Table

Adhesion 5 (very good)  
 4 (good)  
 3 (fair)  
 2 (poor)  
 1 (very poor)  
 0 (very poor)

T = Topcoat to Underlying Coating

S = Primer to Steel

Neg. = negligible

1. **General Interior Dry Coating Condition:** The coating on the interior dry surfaces of the tank appeared to be in good overall condition and providing adequate corrosion protection. The interior dry coating exhibited very good adhesion to the steel.

2. **Interior Dry Lighting System:** The tank was equipped with incandescent, single-globe light fixtures. Two fixtures were located in the base cone, three were in the support column, and two were in the access tube. The bottom fixture in the base cone was not equipped with a bulb at the time of the field evaluation. The other light fixtures were operable. The fixtures were equipped with globes and cages. (See photos 36-37)

3. **Base Cone Condition:** The coating on the interior base cone appeared to be in good overall condition although significant corrosion was noted on the interior base plate projection. Small spots of corrosion were noted on the remainder of the base cone. The surface of the base cone was dirty. The base cone floor consisted of sand. Two electrical cabinets and a heater were located in the base cone. (See photos 32-33, 35, 37-38)

4. **Inlet/Outlet Pipe:** The inlet/outlet pipe extended from a penetration at the bowl down through the support column and through the floor in the base cone. The inlet/outlet pipe was equipped with foam insulation which was in good overall condition at the time of the field evaluation except for an area near the floor penetration where corrosion was noted on the steel. The condition of the rest of the pipe was not evaluated as the intact insulation was not disturbed. The inlet/outlet pipe was U-bolted to a bracket at the support column stiffener. The inlet/outlet pipe was U-bolted to brackets which were welded to the tank. It appeared that an expansion joint was located in the pipe under the insulation just below the bowl. (See photos 34, 38-39, 43, 49)

5. **Overflow Pipe:** The overflow pipe penetrated through the bowl, extended through the support column, and penetrated just above the bottom of the base cone. The overflow pipe was welded to flat bar brackets. (See photos 35-38, 40, 50)

6. **Base Cone Ladder:** **There were safety-related and OSHA deficiencies noted: (1) the ladder rungs were not of slip-resistant design, and (2) conduits and cables were attached to the ladder which could interfere with the climber's use of the side rails.** The base cone ladder extended from the base cone floor to the bottom platform. The base cone ladder was equipped with a safety cage which was of welded steel construction. The base of the safety cage was flared. Two conduits and three cables were located on the left side of the ladder. The base cone ladder was equipped with welded brackets. The ladder and brackets appeared to be in nearly their original structural condition at the time of this field evaluation. (See photos 36-37, 41-43)

7. **Lower Platforms:** **There were safety-related and OSHA deficiencies noted: (1) the 2 in. x 2 in. x 1/4 in. handrails did not precisely meet the required 2 in. x 2 in. x 3/8 in. minimum, (2) the access openings were not equipped with curbs, and (3) the access openings were not equipped with covers or means of deterring personnel from stepping into the openings.** Three platforms were located at the support column rings #1, #3, and #6. The platform access openings were not equipped with curbs or covers. The platforms were not equipped with drain holes, but no evidence of ponding was noted. The platforms were equipped with safety railing which was of welded construction. (See photos 41, 43-45)

8. **Support Column Ladder:** **There were safety-related and OSHA deficiencies noted: (1) the 2 in. x 3/8 in. ladder side rails did not precisely meet the required 2-1/2 in. x 3/8 in., minimum, (2) the 29-3/4 in. head clearance did not precisely meet the required 30 in. minimum, (3) the ladder rungs were not of slip-resistant design, (4) the ladder rungs were not spaced at consistent 12 in. intervals, and (5) conduits and cables were attached to the ladder which could interfere with the climber's use of the side rails.** The support column ladder consisted of three sections between the platforms. The ladder sections were welded to brackets which were welded to the support column. The ladder sections and brackets appeared to be in nearly their original structural condition at the time of this field evaluation. Conduits and cables were attached to some of the ladder brackets. The rung spacing between



sections of each part of the ladder were not consistent. The ladder sections were not equipped with safety cages or safe-climbing devices. (See photos 44-45)

9. **Support Column Condition:** The coating on the support column appeared to be in good overall condition. A few random spots of corrosion were noted. Overspray was observed in the support column coating, and dirt was noted on the support column surfaces. The support column coating had good adhesion to the underlying coating. The support column was equipped with three intermittently welded angle stiffeners located at support column rings #1, #4, and #7. (See photos 36-39)

10. **Top Platform: There were safety-related and OSHA deficiencies noted: (1) the top platform access opening was not equipped with a cover, and (2) the access opening was not equipped with a curb.** A top platform was located at the top of the support column just below the bowl of the tank. The top platform provided access from the top section of the support column ladder to the access tube ladder, the ventilation manhole ladder, and the painter's manhole. The top platform was equipped with a drain hole which did not provide adequate drainage as minor amounts of ponded water were noted on the platform. Minor surface rust and rust staining was noted on the top platform.

11. **Ventilation Manhole and Ladder: There were safety-related and OSHA deficiencies noted: (1) the 2 in. x 3/8 in. ladder side rails did not precisely meet the required 2-1/2 in. x 3/8 in., minimum, (2) the approx. 20 in. head clearance did not meet the required 30 in. minimum, and (3) the ladder rungs were not of slip-resistant design.** A ladder was located between the top platform and the ventilation manhole in the bowl. The ladder was welded to brackets which were welded to the bowl and the top platform. The ladder and brackets appeared to be in nearly their original structural condition at the time of this field evaluation. A single-crab ventilation manhole was located in the bowl. The crab on the manhole was not equipped with a retaining chain. (See photos 46-47)

12. **Interior Dry Bowl Condition:** The coating on the dry bowl surfaces appeared to be in good overall condition and had very good adhesion. A few small spots of corrosion and rust staining were noted on the bowl. Dirt was noted on the bowl surfaces. (See photos 48-50)

13. **Access Tube Condition:** The coating on the access tube appeared to be in good overall condition and had very good adhesion to the steel. A few spots of rust and rust staining were noted in the coating. Dirt was noted on the access tube surfaces. An intermittently welded stiffener was located near the top of the access tube. (See photos 53-54)

14. **Access Tube Ladder: There were safety and OSHA deficiencies noted: (1) the 2 in. x 3/8 in. ladder side rails did not precisely meet the required 2-1/2 in. x 3/8 in., minimum, (2) the 21-1/2 in. head clearance did not meet the required 27 in. minimum, (3) the ladder rungs were not of slip-resistant design, (4) the ladder rungs were not spaced at consistent 12 in. intervals, and (5) conduit and cables were attached to the ladder side rails.** The ladder was equipped with a cable-type safe-climbing device. The access tube ladder was welded to brackets which were welded to the access tube. The brackets appeared to be in nearly their original structural condition at the time of this field evaluation. Conduit and cables were attached to the access tube ladder side rail. An electrical outlet was located near the top of the access tube. The rung spacing was not consistent. (See photos 51-52, 55)

## **D. Interior Wet Container**

### ROOF STIFFENERS:

Number: 26

Size: 6 in. x 1-7/8 in., channel

### TOP SHELL ANGLE:

Size: 4 in. x 4 in. x 3/8 in.

Orientation: leg in

### INTERIOR SHELL STIFFENING RAIL:

Size: 6 in. x 3/8 in., flat bar

Gussets: 1/2 in. thick

### INTERIOR CONTAINER LADDER:

Number of Rungs: 38

Width: 16 in.

Side Rails: 6 in. x 1-3/8 in., channels

Rung Size: 3/4 in. diameter, smooth

Spacing: 12 in. on center

Toe Room: open

Brackets:

Construction: welded to tank and bolted to ladder

Size: 4 in. x 3/8 in., flat bar x 9-3/4 in. long

Spacing: approx. 40 ft

Safe-Climbing Device: 3/8 in. diameter cable-type

CATHODIC PROTECTION: none

### OVERFLOW:

Inlet Type: weir box

Location: approx. 30 in. below the roof

Size: approx. 1 ft x 2 ft 6 in. x 2 ft, deep

### INLET/OUTLET PIPE:

Size: 12 in. diameter

Projection: unknown

Protective Cover: unknown

## INTERIOR WET COATING AND METAL CONDITION:

	Coating Thickness		Approx. % Failure to		Adhesion	Metal Loss	
	Range	Typical	Primer	Rust		Typical	Deepest
Roof	9 mils to 16 mils	11.5 mils	Neg.	5%	4 S	Neg.	Neg.
Shell	-	-	Neg.	1%	-	Neg.	Neg.
Bowl	-	-	Neg.	< 1/2%	-	Neg.	Neg.

Key to Table

Adhesion	5 (very good) 4 (good) 3 (fair) 2 (poor) 1 (very poor) 0 (very poor)	T = Topcoat to Underlying Coating  S = Primer to Steel	Neg. = negligible
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1. **General Interior Wet Coating Condition:** The interior wet coating was in very poor overall condition as widespread corrosion was noted. The interior coating exhibited good adhesion to the steel.

2. **Roof Condition:** The roof interior coating appeared to be in very poor overall condition. The interior roof support structure consisted of intermittently welded stiffeners. Widespread corrosion was noted on the roof plates and roof stiffeners, and the coating had peeled in large areas. (See photos 56-60)

3. **Shell Condition:** The interior shell coating appeared to be in very poor overall condition. Widespread corrosion was noted especially on the lower parts of the shell. The shell coating had been discolored significantly due to mineral staining from the water. A top shell angle was located around the roof-to-shell connection. Minor rust staining had streaked down from the top shell angle onto the upper shell surfaces. An interior shell stiffening rail was located around the shell. **It is the opinion of Tank Industry Consultants that the interior shell stiffening rail should not be used for rigging purposes.** (See photos 67-69)

4. **Access Tube Condition:** The access tube coating appeared to be in poor overall condition as several areas of corrosion were noted. The access tube coating had been discolored significantly due to mineral staining from the water. The overflow pipe and container ladder were located on the access tube. (See photos 56, 61)

5. **Overflow Pipe:** The overflow pipe was equipped with a weir box inlet which was located such that the top capacity level was below the unwelded roof plate lap seams. The overflow pipe was welded to brackets which were welded to the access tube. Extensive amounts of corrosion were noted on the overflow pipe and brackets. (See photos 56, 61, 64-66)

6. **Interior Container Ladder:** There were safety-related and OSHA deficiencies noted: **(1) the ladder rungs were not of slip-resistant design, (2) the rust on the safe-climbing device will likely interfere with its operation, and (3) the rust tubercles on the ladder could cut the climber's hands.** The interior container ladder was equipped with a cable-type safe-climbing device. The interior container ladder was bolted to brackets which were welded to the tank. Spots of corrosion and rust tubercles were noted on the ladder and safe-climbing device. The ladder coating had blistered. (See photos 61-63)

7. **Bowl Condition:** The inspection of the bowl was limited because the tank could not be completely drained and washed out. The coating on the bowl appeared to be in poor overall condition. Corrosion was noted in widespread areas. The bowl coating had blistered, and had been discolored significantly due to mineral staining from the water. (See photos 70-72)

8. **Inlet/Outlet Pipe: There was an operational deficiency noted: the inlet/outlet pipe could not be used to drain the tank.** The diameter inlet/outlet pipe was located in the bowl. The inspection of the inlet/outlet pipe was limited because the tank could not be completely drained and washed out.

## RECOMMENDATIONS:

### A. Foundation and Site

1. **Site Maintenance:** The site should be regraded so that the foundation projects a minimum of 6 in. to a maximum of 12 in. above grade, and so that proper drainage away from the foundation occurs. Site maintenance should be performed with the mower discharge directed away from the base of the tank to prevent rock chips in the coating and the accumulation of grass on the base plates and foundation and around the anchor bolts and gussets. The dead vegetation should be removed from around the overflow concrete splash pad.

2. **Site Access and Restoration:** Contractor and heavy equipment access to the site would be extremely difficult due to the small size of the site. The open areas immediately adjacent to the site may be workable for a contractor to stage equipment. The fence will likely need to be removed during rehabilitation operations and temporary fencing installed in order to allow adequate access for heavy equipment. Provisions should be included in the specifications for the restoration of any fences, sod, or other surfaces and structures disturbed by the contractor's work.

3. **Tank and Site Security:** Water tanks have been defined by some courts under certain circumstances as attractive nuisances. As such, there may be a significant potential liability to the Owner for injury to persons on the tank and tank site, even if access is not authorized. Recent events have prompted the entire water industry to consider measures that inhibit intentional acts that could threaten the water supply. A review of the security requirements for the tank and site is recommended to confirm that the existing measures are consistent with the Owner's security requirements for their water system. Primary tank and site security should be focused on eliminating, preventing, and detecting unauthorized access to the tank. Such security measures might include routinely and periodically verifying all doors, manholes, and gates are locked. Other security measures might include installing site lighting, motion detectors, surveillance cameras, no trespassing signs, alarms on gates, doors, and tank manholes, and arranging more frequent site visits by law enforcement agencies. At a minimum, the base cone door should be locked.

4. **Foundation:** If the foundation should deteriorate prior to performing other tank rehabilitation operations, any unsound concrete should be chipped to sound material and the concrete should be brush-off blasted. Any deteriorated areas or voids found should have a bonding agent and a vinyl emollient modified concrete patching mortar applied to build up the surface to its original contour. (This repair did not appear to be necessary at the time of this evaluation.) The concrete should then be painted with a concrete sealer.

5. **Grout Maintenance:** All loose grout should be chipped away to solid material when the tank is empty. Any shim plates which can be easily removed should be taken out. Any voids in the grout should be filled with a nonshrinking, nonstaining, structural grout material. The grout should be placed as far back under the base plate as possible and squared off vertically with the edge of the base plate. (This repair did not appear to be necessary at the time of this evaluation.) Any gap between the steel base plate and the grout should be filled with a flexible sealant.

## **B. Exterior Surfaces**

1. **Life of the Exterior Coating:** The exterior coating system was in very poor condition and not providing adequate corrosion protection. Tank Industry Consultants believes that the exterior surfaces should be painted within the next year from a corrosion standpoint. Although the existing coating had fair adhesion, due to the extent of failure of the existing exterior coating, much of the exterior will require complete cleaning and repainting, therefore, topcoating is not the recommended option.

2. **Coating Testing:** Prior to preparation of specifications for the cleaning and coating of the exterior of the tank, several samples of the exterior coating system should be subjected to laboratory analysis to test for ingredients which may at that time be subject to regulations concerning their handling and disposal.

3. **Cleaning:** When the exterior is to be cleaned, all varieties of containment should be investigated. Containment of the wind-blown debris and paint droplets may be required due to the proximity of the nearby residence.

### **4. Recommended Coating System:**

a. **Complete Cleaning and Recoating:** The optimum long-life coating system presently available for this site is an epoxy-polyurethane coating system. Properly formulated and applied polyurethanes have good resistance to condensation, mildew, and chipping. The polyurethanes also have excellent color and gloss retention and the longest expected service life of any of the common exterior tank coatings. The typical life of a properly applied epoxy-polyurethane coating system is approximately 15 to 20 years. These coatings are also presently manufactured to meet current VOC requirements.

b. **Coating Application:** When the tank is to be repainted, the tank should be completely cleaned and repainted. The entire tank exterior should be cleaned to the equivalent of an SSPC-SP 6, Commercial Blast Cleaning and have an epoxy-primed, epoxy intermediate and polyurethane finish coating system applied. However, care must be taken during the application of this particular coating system because this coating does have poor dry-fall characteristics, and potential damage to the surrounding property must be taken into consideration. The polyurethane coatings also require close monitoring of temperature and humidity during application

5. **Effective Service Life:** Tank Industry Consultants defines the life of a coating as the amount of time before repainting becomes necessary due to coating failure and corrosion. During the coating life the Owner should expect the coating to lose its gloss, start to chalk, show signs of weathering, and possibly some rust staining. Future touch-up may be required on isolated coating failures. If aesthetics are a concern, the Owner may have to topcoat the repainted tank prior to the end of the expected service life. However, future

topcoating would be less expensive than complete cleaning and recoating and could delay the next complete cleaning and repainting for many years.

6. **Other Systems:** With air emission volatile organic compounds (VOC) restrictions being put in place around the nation, alternative coating systems may become available which would be viable options for this tank. The Owner should review the available systems prior to preparing specifications for the recoating project.

7. **Coating Curing:** It would be more economical to paint the tank exterior at the same time the interior wet is painted, since the tank must be drained while the exterior is painted, and the applied coatings cure. This will also reduce mobilization and observation costs.

8. **Grinding and Bracket Removal:** Any unused brackets or erection lugs should be removed prior to the exterior repainting. Any weld burrs, weld spatter, or erection scars should be ground off to provide a smooth surface for the application of the coating.

9. **Rehabilitation Schedule:** To obtain the lowest possible prices for the work outlined in the recommendations, the Owner should have the specifications prepared and the work bid in the spring, with the work scheduled to start in early summer.

10. **Nameplate:** The tank nameplate should be removed for the cleaning and coating of the tank and should then be reattached to a new bracket.

11. **Anchor Bolts and Gussets:** After abrasive blast cleaning, the anchor bolts, gussets, and nuts should then be examined for deterioration. If deterioration is found and the anchor bolts are mild steel, the deteriorated areas of the anchor bolts should be repair welded as necessary. Grass clippings should not be allowed to accumulate around the anchor bolts.

12. **Base Cone:** The base cone access door should be locked in order to improve water system security.

13. **Painter's Rings:** **It is the opinion of Tank Industry Consultants that the painter's rings should not be used for rigging purposes or personnel access.**

14. **Painter's Manhole:** The missing nut on the painter's manhole should be replaced.

15. **Electrical Apparatus:** All unused antennas, cables, associated brackets, electrical conduit, fixtures, electrical metering equipment, and control cabinets should be removed from the tank and tank site. All required equipment should be repaired and maintained in accordance with the National Electric Code (NEC).

16. **Overflow Pipe:** The screening on the overflow pipe discharge should be replaced should be a new counterweighted, elastomeric check valve.

17. **Existing Roof Manholes:** The unplugged coupling in the side of the access tube should be plugged. The screening on the access tube manhole vent should be replaced, and the gaps eliminated. The access tube roof manhole should be locked at all times in order to improve water system security.

18. **Clog-Resistant Vent:** The proper operation of the clog-resistant vent should be verified.
19. **Roof Plates:** The contour of the roof plates at the perimeter will need to be improved to eliminate water from ponding.

### C. Interior Dry Surfaces

1. **Life of the Interior Dry Coating:** The interior dry coating system appeared to be in adequate overall condition and providing adequate corrosion protection. Tank Industry Consultants believes that the interior dry surfaces should not need to be repainted within the next 4 to 5 years from a corrosion standpoint. However, the interior dry surfaces should be re-evaluated in 3 to 4 years to determine a more precise recoating schedule. Due to the very good adhesion of the existing interior dry coating system, spot cleaning and spot coating will be a viable option if performed before the existing coating adhesion deteriorates further. The interior dry coating system should be evaluated immediately prior to preparing specifications to determine if the coating adhesion is still adequate to accept a topcoat.
2. **Coating Testing:** Prior to preparation of specifications for the cleaning and coating of the interior dry portions of the tank, several samples of the coating system should be subjected to laboratory analysis to test for ingredients which may at that time be subject to regulations concerning their handling and disposal.
3. **Recommended Coating System:**
  - a. **Spot Clean and Spot Coat:** The condition of the interior dry surfaces may allow spot cleaning and spot coating. The typical life of a spot cleaned and spot coated system is approximately 8 to 10 years, but is highly dependent on previous surface preparation and the condition of the underlying coating system
  - b. **Coating Application:** If the interior dry surfaces are to be spot cleaned and spot coated, the entire interior dry surfaces of the tank should be high-pressure washed to remove chalked coating, mildew, and contaminants. After washing, the damaged and rusted areas should be spot cleaned to the equivalent of an SSPC-SP 6, Commercial Blast Cleaning, or SSPC-SP 11, Power Tool Cleaning to Bare Metal. All areas of excessive coating thickness and runs in the coating should be cleaned to the equivalent of an SSPC-SP 7, Brush-Off Blast Cleaning, to remove the excessive mils. The spot cleaned areas should receive a spot prime coat compatible with the present coating system. The spot primed areas should then be spot coated with a finish coat compatible with the present coating system.
4. **Complete Cleaning and Repainting:** If the Owner chooses to remove and replace the existing coating system, the interior dry surfaces should be cleaned to the equivalent of an SSPC-SP 6, Commercial Blast Cleaning and have a two-coat epoxy coating system applied. The typical life of a properly formulated and applied epoxy coating system is approximately 15 to 20 years or more in a dry environment. These coatings are also presently manufactured to meet current VOC requirements.
5. **Grinding and Bracket Removal:** Any unused brackets or erection lugs should be removed prior to the interior dry repainting. Any weld burrs, weld spatter, or erection scars should be ground off to provide a smooth surface for the application of the coating.

6. **Retaining Chain:** A retaining chain should be installed on the bowl ventilation manhole crab.
7. **Inlet/Outlet Pipe:** At the time of interior dry recoating, the insulation on the inlet/outlet pipe should be removed, and the condition of the pipe verified. If any areas of corrosion or damage to the pipe are noted, they should be repaired. The inlet/outlet pipe should be repainted in accordance with the interior wet coating recommendations, and the insulation should then be reinstalled.
8. **Interior Dry Ladders:** If compliance with OSHA dimensional and safety standards is desired, the support column, ventilation manhole, and access tube ladders should be replaced with ladders which meet current requirements dimensional requirements and have compliant rung spacing. The base cone ladder rungs modified to be slip-resistant. In addition, the safety cage is not required on ladders with safe-climbing devices. To reduce cleaning and painting costs and future maintenance costs, Tank Industry Consultants recommends that the base cone ladder safety cage be removed and a safe-climbing device installed. At the time of repainting, the access tube safe-climbing device should be cleaned and protected from the application of the coating. Adequate head clearance should be provided on all of the interior dry ladders, and the cables and conduit should be relocated away from the ladders so they do not interfere with the climber's hand clearance.
9. **Interior Dry Lighting:** The lighting fixtures in the interior dry portions of the tank should be regularly maintained. Any burned out bulbs, damaged globes, or missing cages or fixtures should be replaced. The missing bulb in the base cone ladder fixture should be replaced.
10. **Lower and Top Platforms:** The access opening through all of the platforms should be equipped with closable covers to prevent personnel from accidentally stepping into the openings, and the 4 in. high curbs should be installed at the access openings to prevent falling objects through the openings. At the time of the interior dry repainting, the top platform should be flooded and additional drain holes installed to adequately drain water it. If strict compliance with OSHA and safety-related standards is desired, the handrails on the lower platforms should be raised to 42 in.

## **D. Interior Wet Surfaces**

1. **Life of the Interior Wet Coating:** The interior wet coating system was in very poor overall condition as widespread corrosion was noted. Tank Industry Consultants recommends that the interior surfaces of this tank should be recoated within the next year due to the extent of coating failure and corrosion noted. It is recommended that when the interior is completely cleaned and repainted, an epoxy coating system should be used.
2. **Coating Testing:** Prior to preparation of specifications for the cleaning and coating of the interior of the tank, several samples of the interior coating system should be subjected to laboratory analysis to test for ingredients which may at that time be subject to regulations concerning their handling and disposal.
3. **Recommended Interior Wet Coating System**
  - a. **Epoxy Coating System:** The optimum long-life coating system presently available for the interior of water tanks is a two-component epoxy coating system. As per the American Water standard practices, a three-coat epoxy system is recommended for the interior of this tank. This coating system should meet the certification criteria of ANSI/NSF 61 and state department of health regulations.



- b. **Coating Application:** When the interior wet area is to be repainted, the entire tank interior wet areas should be cleaned to the equivalent of an SSPC-SP 10, Near-White Blast Cleaning and an epoxy coating system applied.
- c. **Service Life:** The typical life of a properly formulated and applied epoxy coating system is approximately 12 to 15 years in immersion service. Tank Industry Consultants defines the life of a coating as the expected service life before repainting becomes necessary due to coating failure and corrosion. The Owner could extend the service life of the coating by installing, properly maintaining and operating a cathodic protection system to help protect the steel surfaces in areas which have experienced coating failure.
4. **Cathodic Protection:** When the tank is rehabilitated the brackets and fittings should be installed for the future installation of a cathodic protection system.
- a. **Type:** When the cathodic protection system is installed, an ice-resistant cathodic protection system which features long-life anodes, automatic potential and current control.
- b. **Scheduling:** After the interior is completely cleaned and recoated, the cathodic protection system should not be energized until after the First Anniversary Inspection. The Owner should conduct washouts and evaluations approximately every 3 years to monitor the need for cathodic protection. As the interior coating begins to show signs of failure, the cathodic protection system should be energized to aid in minimizing corrosion below the top capacity level.
- c. **Maintenance:** Cathodic protection, if used and maintained properly, will control active corrosion below the water level and extend the useful life of a coating system. It should be noted that maintenance as recommended by the cathodic protection manufacturer is required for the cathodic protection system to work properly. Without proper monitoring, the cathodic protection system may operate too high and cause the coating to blister, or the system may operate too low and not adequately protect the exposed steel surfaces.
5. **Pit Welding and Pit Filling:** After initial cleaning, all significant pitting which is found should be welded, and all pitting with rough edges that would make the pitting difficult to coat properly should be filled with a solventless epoxy seam sealer. (It is estimated that approximately 1 gallon seam sealer will be needed for pit repair).
6. **Seam Sealing:** The existing roof manhole and existing roof vent intersections should be sealed with an epoxy seam sealer at the time of the interior recoating.
7. **Flexible Sealant:** The unwelded lapped roof seams should be sealed with a flexible sealant at the time of the interior recoating.
8. **Rough Edges:** All unused brackets should be removed from the interior and exterior surfaces at the time of the next recoating. Any weld burrs, spatter, scars or rough edges in the steel should be ground smooth to provide a better surface for coating. (It was estimated that approximately 10 man-hours of grinding will be required on the interior of the tank.)

9. **Interior Container Ladder:** The interior container ladder rungs should be modified to be slip-resistant, and the rusty safe-climbing device should be replaced.
10. **Shell Stiffening Rail:** **It is the opinion of Tank Industry Consultants that the shell stiffening rail should not be used for rigging purposes.**
11. **Inlet/Outlet Pipe:** The inlet/outlet pipe should be repaired or a drain pipe should be installed so that the tank can be completely drained.

400,000 Gallon Single Pedestal, "Fairgrounds Tank"  
Kentucky American Water, Owenton, Kentucky

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## ECONOMIC FACTORS:

<u>Item</u>	<u>Cost</u>	<u>Life in Years</u>
Replacement of tank with a new one	\$ 600,000 <sup>1</sup>	75+

The following is a complete list of repairs and estimated costs for their respective recommendations found in the RECOMMENDATION section of this report.

<b>Item</b>	<b>Sanitary &amp; Safety</b>	<b>Scheduled Maintenance Repairs</b>
Clean and Paint Exterior:		
SP-6, Complete Clean, Epoxy/Polyurethane System		\$ 95,000
Containment		80,000
Clean and Paint Interior Dry:		
Spot Clean and Spot Coat		25,000
Clean and Paint Interior Wet:		
SP 10, 3-Coat Epoxy System		55,000
Cathodic Protection System		8,000
Miscellaneous Chipping and Grinding		2,000
Seam Sealing		2,000
Pit Repair		1,000
Install Curbs and Covers on Platform Openings (4)	\$ 8,000	
Replace Handrails on Lower Platforms (3)	3,000	
Install Overflow Pipe Elastomeric Check Valve	3,500	
Support Column, Ventilation Manhole, and Access Tube Ladders	12,000	
Remove Base Cone Ladder Safety Cage & Install Safe-Climbing Device	3,000	
Modify Container Ladder Rungs to be Slip-Resistant	2,000	
Replace Container Ladder Safe-Climbing Device	2,000	
Regrade Site	5,000	
Contingency Items	3,000	5,000

Estimates are believed to be a high average of bids that would be received in 2006.

<sup>1</sup> The replacement estimate includes costs associated with new tank fabrication and erection, foundation, painting, and engineering. The budget estimate given does not include costs associated with tank demolition, site acquisition, and distribution interruptions.

400,000 Gallon Single Pedestal, "Fairgrounds Tank"  
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The following economic factors include only those work items that the Engineer believes to be the minimum to properly maintain this tank from an operational standpoint. Other items related to safety and risk management should be evaluated by the Owner.

Item	Cost
Clean and Paint Exterior:	
SP-6, Complete Clean, Epoxy/Polyurethane System	\$ 95,000
Containment	80,000
Clean and Paint Interior Dry:	
Spot Clean and Spot Coat	25,000
Clean and Paint Interior Wet:	
SP 10, 3-Coat Epoxy System	55,000
Miscellaneous Chipping and Grinding	2,000
Seam Sealing	2,000
Pit Repair	1,000
Install Curbs and Covers on Platform Openings (4)	8,000
Replace Handrails on Lower Platforms (3)	3,000
Install Overflow Pipe Elastomeric Check Valve	3,500
Support Column, Ventilation Manhole, and Access Tube Ladders	12,000
Remove Base Cone Ladder Safety Cage & Install Safe-Climbing Device	3,000
Modify Container Ladder Rungs to be Slip-Resistant	2,000
Replace Container Ladder Safe-Climbing Device	2,000
Regrade Site	5,000
Contingency Items	5,000
<b>Total of Engineer's Recommendations</b>	<b>\$ 303,500</b>

Tank Industry Consultants has no control over the cost of labor, materials, or equipment, or over the contractors' methods of determining prices, or over competitive bidding, or the market conditions. Opinions of probable cost, as provided for herein, are to be made on the basis of our experience and qualifications and represent our best judgment as design professionals familiar with the design, maintenance, and construction of concrete and steel plate structures. However, Tank Industry Consultants cannot and does not guarantee that proposals, bids, or the construction cost will not vary from opinions of probable cost prepared for the Owner.

Due to the numerous potential scopes of work which exist, the Owner should obtain an updated budget estimate once the final scope of work has been determined. This would enable the Owner to accurately budget monies for additional mobilization costs and damaged coating rehabilitation costs.

Engineering and resident observation costs are not included in the Total of the Engineer's Recommendations because these fees are dependent upon the scope of work to be performed. Tank Industry Consultants performs all facets of the engineering services which would be required for this project. Estimated fees for engineering and resident observation will be furnished upon request.

## **CLOSURE:**

**Brief Summation:** Kentucky American Water has a 400,000 gallon steel single pedestal storage tank, which was in need of exterior and interior wet recoating. Proper maintenance after completing the recommendations herein would include periodic washouts and evaluations approximately every 3 years.

**Contractor Selection:** The work should be performed by a competent bonded contractor, chosen from competitive bids taken on complete and concise specifications. The coatings used should be furnished by an experienced water tank coating manufacturer, supplying the field service required for application of technical coatings.

**Standards for Repairs and Coatings:** All work done and coatings applied should be applied in accordance with ANSI/NSF Standard 61, the manufacturer's recommendation, AWWA D100 and AWWA D102 (latest revisions), and the SSPC: The Society for Protective Coatings.

**Observation of Work:** Observation of the work in progress by experienced personnel will offer additional assurance of quality protective coating application. Observations can be performed on a continuous basis or spot (critical phase) basis. The actual cost of observation may be less using spot as opposed to full-time resident observation; however, with spot observation it is often necessary for work to be redone to comply with the specifications. This somewhat lowers the quality of the finished product, lengthens the job, and is frequently a cause of conflict between the contractor, Owner, and field technician. Resident full-time observation minimizes the amount of "rework" required.

**Anniversary and Maintenance Evaluations:** An anniversary evaluation should be conducted prior to the end of the one year bonded guarantee. Washouts and coating, structural, sanitary, safety, and corrosion evaluations should be conducted not less than every three years.

**Time Frame:** If the work is not performed within the next 12 months, the structure should be reevaluated prior to the preparation of specifications and solicitation of bids.

**Specifications and Bidding Documents:** The recommendations in this report are not intended to be specifications on which a contractor can bid. Complete bidding documents must include general and special conditions, detailed technical specifications, and other information necessary for the competitive bidding process. To properly protect the interests of the Owner, Contractor, and Engineer; the initial evaluation, the technical specifications, legal portions of the contract documents, and the observation should be performed by the same firm or with close coordination of all parties involved.

**Limitations of Evaluation:** It is believed that the conditions reported herein reflect the condition of the tank as observed on the date of the evaluation, using reasonable care in making the observations, and safety in gaining access to the tank. Should latent defects be discovered during the cleaning of the structure, they should be brought to the attention of the Owner and the Engineer.

**Seismic and Wind Loadings:** This tank is located in a Zone 1 (AWWA D100-96) earthquake region. This evaluation and the reporting of the condition of this tank do not warrant the structural condition of the tank or any of the original design for seismic or coastal wind loadings. Likewise, recommendations for this tank do not include modifications which may be required for compliance with present structural

400,000 Gallon Single Pedestal, "Fairgrounds Tank"  
Kentucky American Water, Owenton, Kentucky

Page 29  
06.045.H310.12

codes. It is possible the tank was erected in compliance with pre-existing industry standards which have since been replaced by more restrictive standards.

**Hazardous Materials in Coatings:** It should be taken into consideration that Federal, State, and local environmental agencies have placed stricter controls on the removal of lead-based and other heavy-metal based coatings from steel structures by the use of conventional abrasive blasting techniques. The paint and blast residue may be considered to be hazardous waste depending on the concentration of lead or other particles in residue.


Please contact Tank Industry Consultants if you have any questions or comments.

Respectfully submitted,

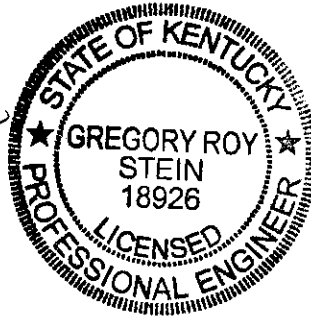
Tank Industry Consultants



Jennifer Coon, CHMM, CET



Gregory R. "Chip" Stein, P.E.  
Vice President

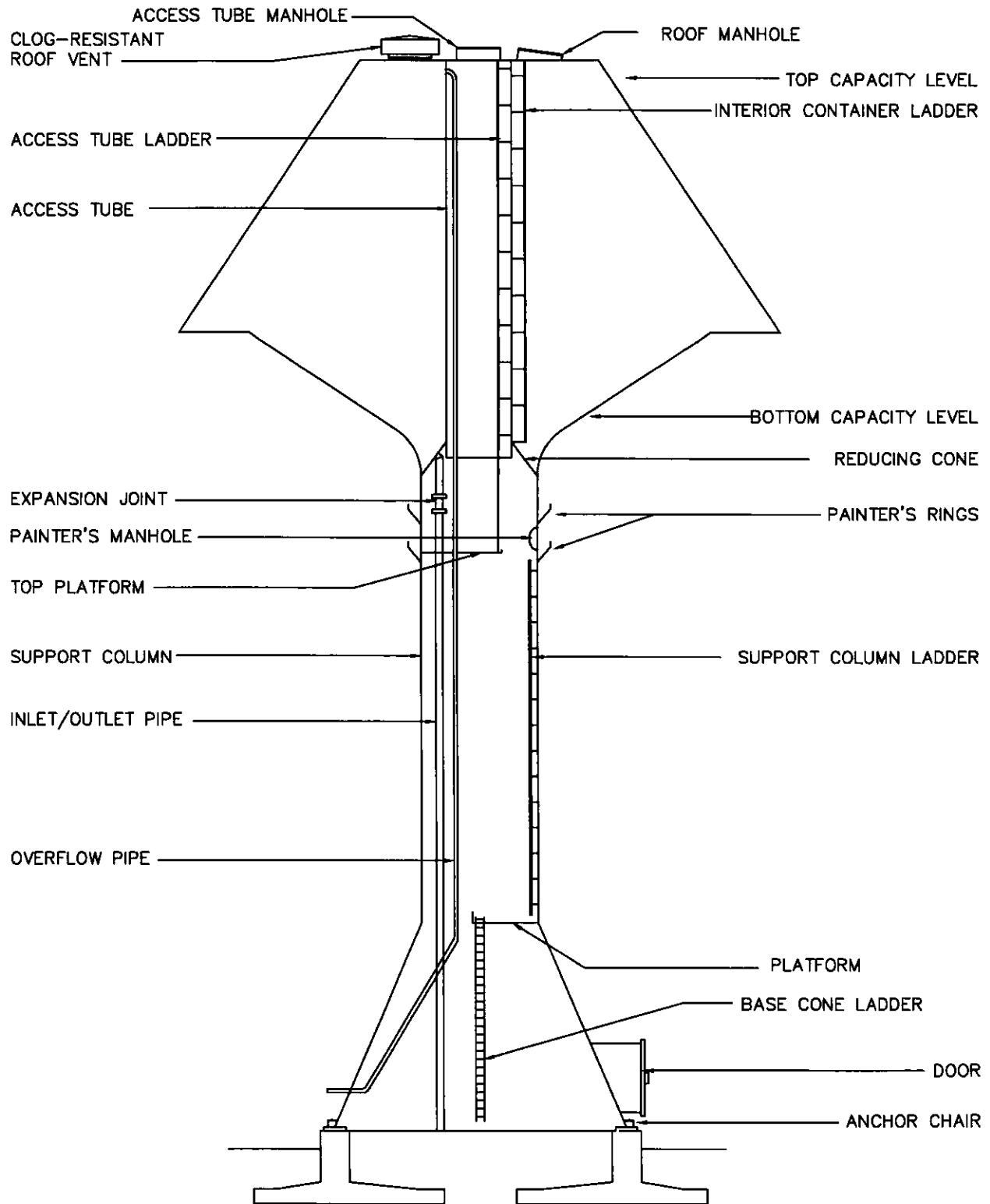


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HQ/H310.00/H310.12/PBI 06.045.H310.12/06.045.H310.12 PBI report





# SINGLE PEDESTAL TANK

## NOMENCLATURE



## Classification of Adhesion Test Results

Method A – X Cut Tape Test Approx. 1.5 in. long cuts at 30 deg. to 45 deg. apart.	Surface	Classification
No peeling or removal.		5
Trace peeling or removal along incisions.		4
Jagged removal along incisions up to 1/16 in. (1.6mm) on either side.		3
Jagged removal along most of incisions up to 1/8 in. (3.2mm) on either side.		2
Removal from most of the area of the X under the tape.		1
Removal beyond the area of the X.		0

Method B – Lattice Cut Tape Test Six parallel cuts at 2mm apart.	Surface	Classification
The edges of the cuts are completely smooth; none of the squares of the lattice are detached.	No Failure	5
Small flakes of the coating are detached at intersections; less than 5% of the lattice is affected.		4
Small flakes of the coating are detached along edges and at intersections of cuts. The area affected is 5% to 15% of the lattice.		3
The coating has flaked along the edges and on parts of the squares. The area affected is 15% to 35% of the lattice.		2
The coating has flaked along the edges of cuts in large ribbons and whole squares have detached. The area affected is 35% to 65% of the lattice.		1
Flaking and detachment worse than grade 1.		0

## Tank Industry Consultants

7740 West New York Street  
Indianapolis, Indiana 46214

Telephone – 317/271-3100  
FAX – 317/271-3300



**- CERTIFICATE OF ANALYSIS -**

Report Date: 13-Jun-06

Client ID: TANK\_INDUST

Tank Industry Consultants  
7740 West New York Street  
Indianapolis, Indiana 46214

Attn: Julie Perkins

Phone: (317) 271-3100

FAX: (317) 271-3300

Our Lab # 06006306-001

Your Sample ID: Interior Wet

Your Project # 06.045 H310.12

Collection Date: 06/12/06

Your Project Name:

Collected By: Client

Sample Type: Paint Chips

Receipt Date: 06/12/06 10:15

Total Metals, ICP-AES

Analytical Method Prep Method Prep Date By  
SW846 6010B SW846 3050B 6/12/06 ameal

Parameter	Result	Units	Quant.		CAS #	Analysis	
			Qual	Limit		Date	By
Cadmium, Cd	< 25.0	mg/kg	25.0	25.0	7440-43-9	6/13/06	kfoltz
Chromium, Cr	< 250	mg/kg	250	250	7440-47-3	6/13/06	kfoltz
Lead, Pb	< 250	mg/kg	250	250	7439-92-1	6/13/06	kfoltz

Our Lab # 06006306-002

Your Sample ID: Interior Dry

Your Project # 06.045 H310.12

Collection Date: 06/12/06

Your Project Name:

Collected By: Client

Sample Type: Paint Chips

Receipt Date: 06/12/06 10:15

Total Metals, ICP-AES

Analytical Method Prep Method Prep Date By  
SW846 6010B SW846 3050B 6/12/06 ameal

Parameter	Result	Units	Quant.		CAS #	Analysis	
			Qual	Limit		Date	By
Cadmium, Cd	< 25.0	mg/kg	25.0	25.0	7440-43-9	6/13/06	kfoltz
Chromium, Cr	< 250	mg/kg	250	250	7440-47-3	6/13/06	kfoltz
Lead, Pb	< 250	mg/kg	250	250	7439-92-1	6/13/06	kfoltz

Lab # 06006306-002

Sample ID: Interior Dry

Page 1 of 2

**ESG Laboratories**

5927 WEST 71ST STREET  
INDIANAPOLIS, INDIANA 46278

INDIANAPOLIS, INDIANA 46278  
TEL: (317) 290-1471 FAX: (317) 290-1670

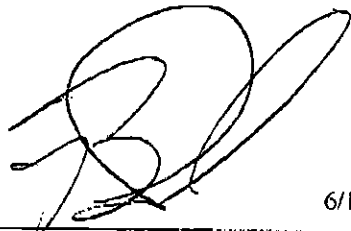
PHONE (317) 290-1471  
FAX (317) 290-1670



<b>Our Lab #</b> 06006306-003	<b>Your Sample ID:</b> Exterior
<b>Your Project #</b> 06.045 H310.12	<b>Collection Date:</b> 06/12/06
<b>Your Project Name:</b>	<b>Collected By:</b> Client
<b>Sample Type:</b> Paint Chips	<b>Receipt Date:</b> 06/12/06 10:15

Total Metals. ICP-AES

Parameter	<u>Analytical Method</u>		<u>Prep Method</u>		<u>Prep Date</u>	<u>By</u>
	Result	Units	Qual	Limit	CAS #	Analysis Date
Cadmium, Cd	< 25.0	mg/kg	25.0	7440-43-9	6/13/06	kfoltz
Chromium, Cr	< 250	mg/kg	250	7440-47-3	6/13/06	kfoltz
Lead, Pb	< 250	mg/kg	250	7439-92-1	6/13/06	kfoltz



6/13/06

Lab Manager

Date





400,000 Gallon Single  
Pedestal,  
“Fairgrounds Tank”  
  
Kentucky American  
Water,  
Owenton, Kentucky

1. Tank and site.



2. Tank and site.



3. Surrounding area.



4. Surrounding area.



5. Surrounding area.



6. Site.





7. Tank foundation, grout, base plate, and anchor bolt and gussets.



8. Tank foundation, grout, base plate, and anchor bolt and gussets. Note grass clippings on foundation and base plate.



9. Tank foundation, grout, base plate, and anchor bolt and gussets. Note grass clippings on base plate.



10. Overflow pipe projection from the base cone.





11. Flap gate on overflow discharge above concrete splash pad. Note dead vegetation surrounding concrete splash pad.



12. Corrosion behind the tank nameplate.





13. Topcoat failure and corrosion on base cone and support column. Note antenna.



14. Topcoat failure and corrosion on base cone and support column. Note antenna.



15. Topcoat failure and corrosion on base cone and support column. Note antenna.



16. Spots of corrosion on support column and base cone.



17. Spots of corrosion on support column. Note painter's rings and painter's manhole.



18. Painter's rings on support column.



19. Corrosion on the bowl.



20. Bowl and sign on the shell.



21. Bowl and sign on the shell.



22. Spots of corrosion and topcoat failure on the shell.





23. Corrosion, topcoat failure, and areas of accumulate water on the roof.



24. Corrosion, topcoat failure, and areas of accumulate water on the roof.



25. Corrosion, topcoat failure, and plugged coupling on the roof.



26. Corrosion on the roof manhole.



27. Roof manhole and interior container ladder.



28. Corrosion on the access tube roof manhole, roof vent, and antenna.





29. Corrosion on the access tube roof manhole.



30. Corrosion and topcoat failures on the roof vent.



31. Screening on the roof vent.



32. Corrosion on the interior base plate projection.



33. Cabinet in base cone.



34. Corrosion near the base of the inlet/outlet pipe.





35. Overflow pipe.



36. Base cone ladder and safety cage. Note conduits and cables.



37. Light fixture on base cone ladder safety cage.



38. Inlet/outlet pipe, dry platforms, and overflow pipe.



39. Inlet/outlet pipe and bracket.



40. Overflow pipe and bracket.



41. Base cone ladder access through bottom platform.



42. Top of the base cone ladder.





43. Base cone ladder, inlet/outlet pipe, and bottom platform.



44. Platform and support column ladder section.





45. Access through a platform and support column ladder section. Note conduit and cables.



46. Ventilation manhole ladder.



47. Ventilation manhole.



48. Cable and dry bowl.



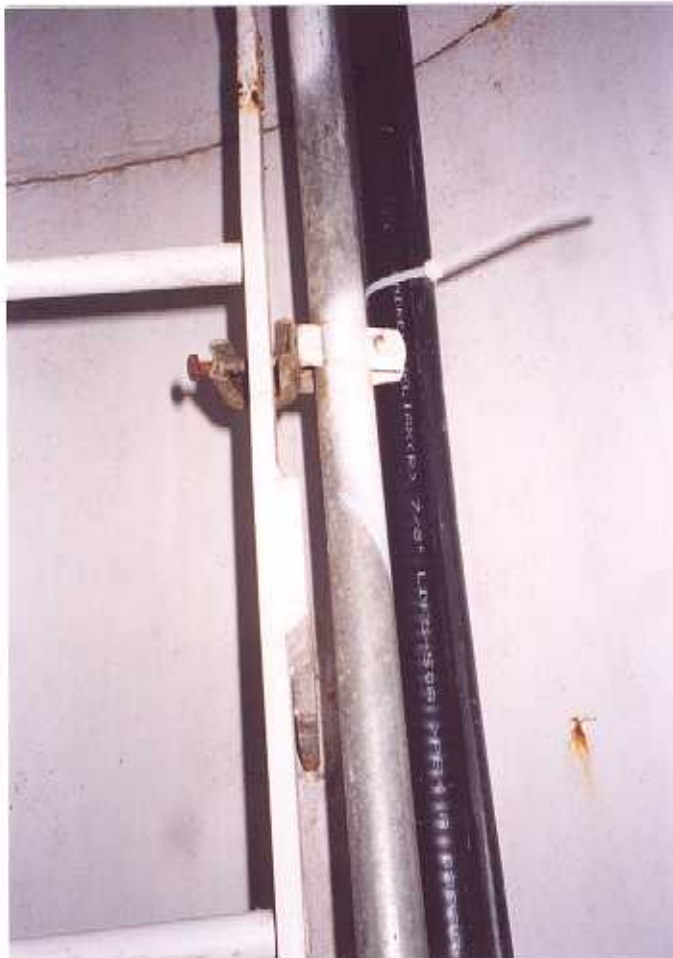
49. Insulated inlet/outlet pipe at dry bowl.



50. Overflow pipe at dry bowl.



51. Access tube ladder and safe-climbing device. Note conduits.



52. Conduit and cable on access tube ladder.





53. Spots of corrosion on access tube.



54. Spots of corrosion on access tube.



55. Top of the access tube ladder and safe-climbing device.



56. Corrosion on the roof, access tube, and overflow pipe.



57. Corrosion on the roof.



58. Corrosion on the roof.





59. Corrosion on the roof.



60. Corrosion on the roof.





61. Corrosion on the container ladder, access tube, and overflow pipe.



62. Container ladder and safe-climbing device.



63. Rust tubercles on the container ladder and safe-climbing device.



64. Overflow inlet weir box.

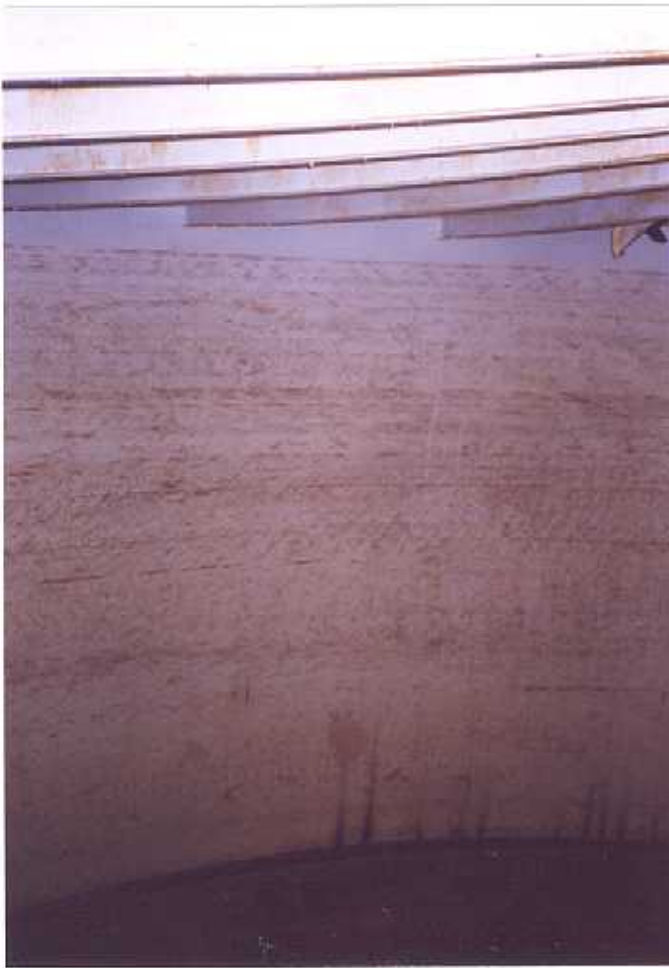


65. Corrosion on the overflow pipe.



66. Corrosion on the overflow pipe.





67. Shell interior.



68. Corrosion near the base of the shell.



69. Corrosion near the base of the shell.



70. Corrosion on the bowl.





71. Corrosion on the bowl.



72. Corrosion on the bowl.

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

---

**Witness: Lance Williams**

55. Identify and describe the repairs and maintenance necessary to maintain the Fairgrounds Water Storage Tank in operation.

**Response:**

In the fall of 2006, KAW bid the necessary repair work to maintain and operate the Fairgrounds Water Storage Tank. KAW attempted to take the tank out of service multiple times to perform that work. When KAW did so, the system lost pressure and the repairs had to be aborted every time.

The construction of a new elevated storage tank would allow KAW to do the necessary maintenance to the Fairgrounds Water Storage Tank.

For a detailed description of the repairs, please refer to the attached specifications from that project dated October 11, 2006, which is attached to the Response to PSC Data Request No. 54.

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

---

**Witness: Lance Williams**

56. State when the City of Owenton and KDOW agreed to relocate the raw water intake from Severn Creek to the Kentucky River.

**Response:**

The KDOW reviewed and approved plans in 2005 from the City of Owenton for the raw water intake project.



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

---

**Witness: Lance Williams**

57. State the location of the Owenton Water Treatment Plant raw water intake if relocated.

**Response:**

The location of the raw water intake would be at approximately Mile 35.9 on the Kentucky River, which is near the intersection of KY 355 and Severn Creek Road.

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

---

**Witness: Lance Williams**

58. Describe the difference in the quality of the raw water at the current water intake location and the proposed new location.

**Response:**

The location of the existing water intake on Severn Creek is in a bend that gets inundated with leaves and debris and is a collection point for sediments. This affects the operation of the raw water pumps by reducing their capacity, which can result in the plant having to use Thomas Lake. The location of the Severn Creek intake is a factor in the Severn Creek increased levels of total organic carbons which are precursors for disinfection byproducts such as trihalomethanes haloacetic acids. In addition, because of the volume of water in Severn Creek, upstream impacts (e.g., farming) will have a bigger impact on water quality.

The location of the new water intake would be on the Kentucky River. Because the proposed location is not in a bend, the collection of leaves and sediment will not cause as great an impact as at present. In addition, due to the volume of water in the pool, dilution would likely reduce up gradient impacts.

2011 comparisons of Total Organic Carbon data from Severn Creek vs. Kentucky River Pool 3 data show a dramatic difference in organics in Severn Creek. The amount of organics between the two results in a significant difference in the chemical costs required to meet regulatory requirements.

Month	KRS II Raw Water TOC (mg/L)	Owenton Raw Water TOC (mg/L)	Difference (mg/L)	% Difference
January	2.05	4.85	2.81	81%
February	2.35	4.17	1.83	56%
March	3.14	10.52	7.39	108%
April	3.09	8.21	5.13	91%
May	2.64	3.14	0.50	17%
June	3.05	4.1	1.06	30%
July	3.29	4.16	0.88	24%
August	3.59	3.74	0.16	4%
September	2.88	3.69	0.81	25%
October	3.21	3.36	0.15	5%
November	2.94	5.12	2.18	54%
December	2.78	3.16	0.38	13%

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

---

**Witness: Lance Williams**

59. Explain why Kentucky-American has delayed moving the location of the raw water intake.

**Response:**

The raw water intake structure located on Severn Creek is not owned by KAW, but is owned by the City of Owenton.

Originally, the Division of Water was concerned that water from Severn Creek could not produce a quality of water that would meet current regulations. After KAW purchased the Owenton Water Treatment Plant, it was determined through distribution system evaluation that adjustments to the chemicals and the manner in which the existing plant was being operated reduced the disinfection by-products to satisfy regulations.

There are presently no new promulgated regulations that KAW cannot meet. The regulations, however, have shown a trend of reducing Disinfection By-Product levels, eliminating averaging-in standards, and sampling more frequently and at more locations. If those trends continue, KAW anticipates it will not be able to operate the Owenton Water Treatment Plant at the current rated capacity while also meeting water quality standards and demand.

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

---

**Witness: Lance Williams**

60. Refer to "Engineering Feasibility Study Report for Supplying Kentucky American Water's Northern District Distribution System" at 5.
- a. List and describe each of the improvements for "Raw Water Intake Improvements."
  - b. Identify the local and state regulations that require the "Raw Water Intake Improvements."
  - c. Identify the Kentucky-American guidelines that require the Raw Water Intake Improvements." Provide a copy of each guideline.
  - d. Identify all cost savings that will result from the Raw Water Intake Improvements."
  - e. State all assumptions, show all calculations, and provide all work papers used to derive the cost estimate of \$1,400,000.

**Response:**

- a) The improvements include the construction of approximately 2,500 linear feet of 12-inch raw water line, a new intake structure with pump station on the Kentucky River, corresponding power supply and controls, and conversion of the existing intake pump station to a raw water booster pump station.
- b) 401 KAR 8:020, Section 6 incorporates the water plant design criteria set forth in the Recommended Standards for Water Works (2003 edition) which is published by the Great Lakes-Upper Mississippi River Board of State Public Health and Environmental Managers. Those recommended standards include raw water intake structure requirements.
- c) See the attached American Water Standard P-01 Section 2.2 through 2.4.
- d) It is not anticipated there will be cost savings in the operation and maintenance of the new intake if this project is constructed. It is recognized that the chemical costs would likely decrease due to a reduction in the amount of organics present in the Kentucky River versus Severn Creek. Additional fuel and power costs, however, will be incurred with the additional pump station.
- e) Please see the attached letter from Strand Associates, Inc.

**STANDARD P-01**  
**PLANNING CRITERIA (FOR WATER SYSTEMS)**

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## 1.0 OVERVIEW

The purpose of the Comprehensive Planning Study is to recommend capital improvements that enable American Water to:

- continue to provide safe, adequate and reliable service to customers in its service territory
- meet domestic, commercial and industrial customer demand, and
- enhance fire protection capability.

The engineering criteria used to evaluate various system components are detailed in the following subsections. Note that all American Water systems are unique and some of the following sections may not be applicable to certain water systems. For example, surface water system criteria are not applicable for systems supplied solely by groundwater.

## 2.0 ENGINEERING CRITERIA

In planning the needed water facilities, accepted engineering standards and practices are utilized to evaluate facilities. Using these standards and practices, an assessment is made to determine if adequate capacity and an appropriate level of reliability are present for domestic, commercial, industrial usage, and fire protection needs.

Specific details regarding the planning criteria utilized are provided in the following subsections. Recommendations included in this Comprehensive Planning Study address improvements that work towards meeting the planning criteria described above. In addition, recommendations are included in this report where structural or mechanical problems with existing facilities are evident.

It is beyond the scope of this Comprehensive Planning Study to attempt to identify the end of the useful life of each piece of American Water's equipment; for example, the many miles of pipeline within a distribution system. Also, capital expenditures will occur over time due to normal aging and operational wear on existing equipment, and to enhance system security. For this and various other reasons, it is expected that American Water may encounter additional capital expenditures beyond those identified in this Comprehensive Planning Study.

### 2.1 Customer & Demand Projection Methodology

Projections of the total number of customers and their associated demands are developed for the water system over a fifteen-year planning horizon. Since each water system is unique, the specific techniques used to project both customers and demands vary as appropriate. In general, the projections are developed based on a review of population trends, historic customer and demand data, and local planning commission forecasts. Large customers may be interviewed by telephone, or are asked to complete surveys of current and potential water consumption. Discussions are held with water system personnel, either in conjunction with field visits to the system and/or via telephone. More specific methods used to develop both customer and demand projections are discussed below.

Three projections of water demand are developed for the water system, referred to as the Low Growth scenario, Most Likely Growth (or Base) scenario, and High Growth scenarios. These three projections represent the forecast range of water demands that may occur over the 15-year planning period. The three water demand projections are generated by considering

different forecasts of residential customer growth, increases in (or decline of) major commercial and industrial customer water consumption, and various levels of non-revenue and unaccounted-for water.

### **Trends in Residential Consumption**

Residential customer growth is projected based upon trends in historic customer figures as well as population and housing forecasts developed by state, county, and/or local planning agencies. The Low Growth scenario, Most Likely Growth scenario, and High Growth scenario projections of customer growth are developed to cover the range of potential increases. In some water systems, where growth is minimal, the Low Growth scenario may indicate that the residential customer base will remain constant or decline. Customer forecasts also account for new home construction, connection of existing homes on private water supplies to the water system, and acquisition of adjacent water systems.

Per customer residential usage in gallons per customer per day (gpcd) is projected based upon historic use patterns, consideration of the impacts of both existing and future water conservation efforts, and any potential changes in the number of persons per household. Long term per customer water use is anticipated to be impacted by the passage of the federal Energy Policy Act in 1992 (EP Act). At that time it was anticipated that over the next 20-25 years, water utilities in the U.S. would realize demand reductions as a result of the national water efficiency requirements that were set by the EP Act. The efficiency requirements set maximum use levels for toilets (1.6 gallons per flush (gpf)), urinals (1 gpf), showerheads (2.5 gallons per minute (gpm)) and faucets (2.5 gpm). These efficiency standards applied to plumbing fixtures in new and renovated residential and non-residential facilities. The EP Act standards will have a cumulative and long term impact on lowering future indoor water usage as existing fixtures are gradually replaced, particularly in the residential sector. AW has already seen savings on indoor residential consumption in the range of 10-17% over the last 12 years presumably due to the Energy Policy Act requirements.

Based on a thorough analysis of trends across AW, a 1% annual reduction in existing residential consumption is expected to result from the Energy Policy Act and other new legislation (The Energy Independence and Security Act of 2007) mandating lower flow plumbing fixtures and appliances in new homes and renovations, see **Table A-1**. Based on an assumed appliance lifetime and the years the new regulations on dishwashers and clothes washers take affect, the effects could be noticeable for another 10-15 years. Therefore this reduction should be considered (at a minimum) in planning analyses over the next 10-15 years before leveling off.



**Table A-1**  
**Flow Rates before and after Federal Standards**

Type of Use	Pre regulatory flow*	New Standard	Year effective
Toilets	3.5 gpf	1.6 gpf	1994
Clothes washers	40.9 gpl, 13.3 W.F**	28.5 gpl, 9.5 W.F	2011
Showers	2.75 gpm	2.5 gpm	1994
Faucets	2.75 gpm	1.5 gpm	1994
Urinals	1.5 gpf	1.0 gpf	1994
Dishwashers	14.0 gpc	4.5 gpc - 6.5 gpc	2010

\* Average flows for the period 1980-1990 (except for clothes washers), Source: Handbook of Water Use and Conservation, Amy Vickers, May 2001

\*\* Current Average flow rate, Source: <<http://www.aquacraft.com/Publications/resident.htm>> and [http://www.eere.energy.gov/states/news\\_detail.cfm/news\\_id=8531?print#end](http://www.eere.energy.gov/states/news_detail.cfm/news_id=8531?print#end)

gpl - gallons per load

W.F - Water factor or gallons per cycle per cubic feet capacity of the washer

gpc - gallons per cycle

### **Trends in Commercial Consumption**

Projections of commercial customers and water demand are based primarily on historic trends. Growth in commercial water demand generally follows residential growth trends, as commercial development typically goes hand-in-hand with residential growth. One parameter that is considered in projecting commercial usage is the historic relationship between residential usage and commercial usage. Where confirmed major changes in commercial activity are identified (e.g., a large office complex or shopping center), appropriate figures are incorporated into the projections.

### **Trends in Industrial Consumption**

As in the commercial category, industrial water demand projections are also dependent on historic usage trends. However, since there are typically far fewer industrial customers than commercial customers, it is easier to identify changes in water demands by the major industries, and thus forecast industrial water demand. The projected water usage for key industrial customers is based in part on information obtained through interviews conducted by water system personnel familiar with the service area.

### **Non-revenue and Unaccounted-for Water**

Non-revenue water is projected based on historic annual data and discussions with water system personnel regarding future activities in these classifications. Non-Revenue water is defined as the difference between the total system delivery and the sum of all billed authorized

(metered and flat rate) consumption. It includes water for fire fighting, street cleaning, main flushing, and identifiable leakage or unbilled authorized consumption as well as water losses. Unbilled Authorized consumption includes usage such as: fire fighting, street cleaning, main flushing, and other beneficial uses that are not typically metered, but can be estimated. Water losses are defined as the difference between the total system delivery and the sum of all metered sales, flat rate accounts, and unbilled authorized consumption.

### **Maximum Day to Average Day Demand Ratios**

The average day demand projections are determined from a summation of forecasts for the individual classifications. Future maximum day to average day demand ratios are estimated using a statistical analysis of historic data. Both a point estimate and an interval estimate of this ratio are determined. The point estimate is the median value of the ratio over the chosen historic period, and represents a value for which past ratios were above this value 50% of the time, and at or below this value 50% of the time. While this level may be adequate to estimate annual operational parameters, the level is not adequate on which to base long-term capital planning decisions. Rather, American Water's long-range forecasts utilize the criteria that facility planning should be based upon meeting projected maximum day customer demands with a 95% confidence level. The confidence level value of 95% represents a level that is not expected to be exceeded more than once in 20 years. Planning facilities for a higher confidence level (e.g., in 20 of 20 years) would result in higher capital costs for small incremental gains in reliability.

To define the maximum day to average day demand ratio that will not be exceeded in a given number of years, an interval estimate around the mean value of this ratio is determined. The interval estimate defines the interval of values that the maximum to average day ratio will fall within for a certain degree of confidence. Several confidence intervals, namely the 99%, 95%, 50% and 5% intervals, are evaluated to illustrate the probable variation in maximum day demands that will likely be experienced during the planning period. Each confidence interval is calculated based upon multiplying the mean value (plus or minus the standard deviation) by a reliability coefficient.

### **2.2 Source of Supply Analysis Methodology**

American Water's sources of supply should have the necessary quantity of water to meet the projected system demand, and be of good enough quality to provide finished water after treatment that complies with all Federal and State regulations.

The quality of the water from source of supply is regularly monitored for routine wet chemistry parameters such as pH, turbidity, alkalinity, parasites, microbes, etc., as well as for potential chemical contaminants in order to optimize the chemical treatment process.

State and American Water's standards are applied (whichever is more stringent) when evaluating the adequacy of supply. Sources of Supply should have the necessary quantity of water to supply the system's needs and be of good enough quality to provide, through treatment, finished water that meets all Federal and State regulations.

River supplies are considered adequate when the low flow of record is greater than or equal to the maximum day demand plus required passing flows. Surface reservoirs or lakes should have a safe yield sufficient to meet the average day demand during the critical drought period, based on an event with a recurrence interval of no less than one in fifty years. Groundwater supplies

should have a safe yield sufficient to meet the average day demand during the critical drought period without overdrafting the supplying aquifer, based on an event with a recurrence interval of no less than one in fifty years. Sources of supply should also have sufficient allocation rights to permit average and maximum demands to be met.

### **2.3 Source Water Quality and Watershed Protection**

The quality of surface water is affected by the amount and types of activity in watersheds that feed surface water sources. Runoff from farmland and urbanized area storm water, discharges from sewage treatment plants and industrial plants, and accidental spills in the water body can adversely impact raw water quality.

A source water monitoring program is maintained to ensure the quality of the finished water, and to control the costs associated with treating the water supply. The program is designed to define the potential for water quality impacts from both point and non-point sources. Watersheds are actively monitored through routine sampling of various raw water quality parameters. For surface supplies, monitoring activities are coordinated with local, state and federal authorities, and communication procedures have been established in the event of a contamination incident.

Raw water testing is performed by American Water's laboratory in Belleville, Illinois. Selected contaminants of concern include: inorganics, metals, minerals, pesticides, priority pollutants, synthetic and volatile organic chemicals, and microbiological and radiological parameters. A brief summary of some key parameters is provided in the Source of Supply and Production Section of this report to provide an indication of general water quality.

### **2.4 Treatment Facility Evaluation Criteria**

Production facilities are defined as those used in raw water acquisition, transmission, treatment and pumping. Recommendations for capital improvements were developed after evaluating American Water's ability to provide a reliable and high quality water supply, to ensure continued compliance with existing and anticipated federal and state water quality and environmental regulations, and to meet projected customer demands through the planning period.

The goal of American Water is to continue to produce high quality water that meets or surpasses federal and state water quality standards. However, the characteristics of each individual source of supply require a diversity of treatment techniques including: disinfection, corrosion control, pH adjustment, and complete clarification/filtration. Other, more sophisticated treatment techniques are applied, as necessary, on a case-by-case basis.

The adequacy of production (treatment) facilities is evaluated based on the ability to provide an adequate, reliable finished water supply that will satisfy present and future demands, be aesthetically satisfactory to customers, and meet all federal and state regulations. Treatment plants are evaluated to assure that loading rates for all components are sustainable under maximum demand conditions without compromising water quality. Plant hydraulics are evaluated to ensure that adequate volumes of water can flow through the various components.

Each treatment process and chemical feed system at the plant is analyzed both as a separate entity and in conjunction with the facility's overall operations. Monitoring and control equipment should meet regulatory requirements and American Water's standards. Chemical feed and storage systems should be adequately sized to meet the full range of production rates while

conforming to American Water's standards for safety, reliability, and construction. These issues are discussed further in this subsection.

Consideration is also given to providing adequate redundancy of treatment plant components to ensure reliability of service during scheduled or unscheduled maintenance and during emergencies. Adequate auxiliary power and/or dual utility power feeds should be provided to enable the plant to produce 100% of the average daily demand.

#### **2.4.1 Drinking Water Regulations**

Using the authorities granted under the Safe Drinking Water Act (SDWA) and state statutes, USEPA and state regulatory agencies have proposed and promulgated numerous drinking water regulations that will impact the treatment process and operation of Water Company facilities both now and in the future. In particular, Congress passed the 1996 Amendments to the Safe Drinking Water Act to reaffirm prior rules, establish new requirements for selecting contaminants to be regulated, allow for the analysis of health risk reduction, costs and benefits, and permit competing risks to be weighed. Currently, USEPA has standards set for almost 100 contaminants.

Current federal regulations are explained in more detail in the following subsections and a summary of the time frame for proposal, promulgation, and enforcement of recently promulgated and future regulations is shown in **Table A-2**.

**Table A-2****Target Dates for Current and Future Drinking Water Regulations**

<b>Rule</b>	<b>Proposal Date(1)</b>	<b>Promulgation Date(1)</b>	<b>Compliance Date(1,2)</b>
IESWTR	November 1997	December 16, 1998	January 2002
Stage 1 D/DBPR	November 1997	December 16, 1998	January 2002
LT1 ESWTR	April 2000	January 14, 2002	January 2005
Arsenic Rule	June 2000	January 22, 2001	2004 (new sources) 2006 (existing sources)
Filter Backwash Recycle Rule	April 2000	June 8, 2001	2004 (2006 if capital improvements required)
Radionuclides	April 2000	December 7, 2000	By Dec. 31, 2007
Stage 2 D/DBPR	August 2003	January 4, 2006	April 2012(3)
LT2 ESWTR	August 2003	January 5, 2006	April 2012(3)
Ground Water Rule	May 2000	November 8, 2006	December 1, 2009
Revisions to Lead and Copper Rule	July 2006	October 10, 2007	April 10, 2008(4)
Revisions to Total Coliform Rule / Distr. System Rule	July 14, 2010	TBD	TBD
Radon	November 1999	TBD	TBD

## Notes:

- (1) Dates for regulations that have not yet been promulgated are best estimates based on latest information.
- (2) Compliance (effective) dates are normally 3 years after promulgation date. Many rules use a staggered implementation schedule with larger systems (e.g., systems serving larger populations) beginning implementation at the compliance date and smaller systems complying at a later date. Systems making major capital improvements may be allowed two additional years to achieve compliance, depending on the rule.
- (3) The implementation schedule for the Stage 2 D/DBPR and Long Term 2 ESWTR will use a 6-month phase-in approach as follows: systems serving over 100,000 people; systems serving 50,000 – 99,999; systems serving 10,000 – 49,999; and systems serving less than 10,000.
- (4) The revisions to the Lead and Copper Rule became effective upon State adoption of primacy for the revised rule (April 10, 2008 for States that adopt rules by reference).

## Disinfection Byproduct Regulations

Disinfection of drinking water helps protect against microbial contamination. However, the disinfectants themselves can react with naturally-occurring materials in the water to form unintended organic and inorganic byproducts which may pose health risks. In order to address cancer concerns related to high disinfection byproduct (DBP) levels, USEPA has promulgated a number of regulations to limit DBP levels in the distribution system. The most recent sets of DBP regulations were developed in conjunction with new regulations to control microbial contaminants in an effort to balance microbial protection and DBP formation. Current disinfectant and disinfection byproduct limits are provided in **Table A-3**.

Previous DBP Rules – Through the Total Trihalomethanes Rule (TTHM Rule) (1979) and the Stage 1 Disinfectants and Disinfection Byproducts Rule (Stage 1 DBPR) (1998), USEPA established monitoring requirements and limits for TTHMs (0.1 mg/L under the TTHM Rule; reduced to 0.080 mg/L under the Stage 1 DBPR) and HAA5s (0.060 mg/L under the Stage 1 DBPR). Compliance was determined by calculating a running annual average based on a system-wide average of quarterly monitoring. The number of samples required was based on the number of treatment plants in the system. Only systems disinfecting the water with a chemical disinfectant were required to monitor and meet the Maximum Contaminant Levels (MCLs) (although some State drinking water programs extended the Stage 1 DBPR requirements to consecutive systems that purchase disinfected water).

The Stage 1 DBPR also set enforceable maximum residual disinfectant levels for chlorine, chloramines, and chlorine dioxide; MCLs for bromate and chlorite; and set requirements for removal of total organic carbon (TOC) in conventional treatment plants.

Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) – The Stage 2 DBPR, promulgated in January 2006 in conjunction with the Long Term 2 Enhanced Surface Water Treatment Rule, is designed to further reduce cancer risks (and potential reproductive / developmental risks) and ensure that all customers are equally protected. The rule applies to all water systems that add a chemical disinfectant or deliver water that has been treated with a chemical disinfectant (e.g., consecutive systems). Although the TTHM and HAA5 levels have not changed (0.080 mg/L and 0.060 mg/L, respectively), compliance is now based on the Running Annual Average (RAA) at each location (Locational Running Annual Average or LRAA) and the number of samples required is based on the population served. Further, to ensure that monitoring captures both maximum TTHM levels as well as maximum HAA5 levels, systems are required to conduct an Initial Distribution System Evaluation to identify Stage 2 compliance monitoring locations. The rule also includes requirements for systems to investigate any “high DBP levels” under an Operational Evaluation.

**Table A-3****Disinfectant and Disinfection Byproduct Limits**

Disinfectant	MRDLG (mg/L)	MRDL (mg/L)	Comment
Free chlorine	4.0	4.0	as Cl <sub>2</sub>
Chloramines (Total chlorine)	4.0	4.0	as Cl <sub>2</sub>
Chlorine dioxide	0.8	0.8	as ClO <sub>2</sub>
Contaminant	MCLG (mg/L)	MCL (mg/L)	Comment
Total trihalomethanes	0.0	0.080	Converting from RAA to LRAA
Total haloacetic acids (HAA5)	0.0	0.060	Converting from RAA to LRAA
Bromate	0.0	0.01	for systems with ozone
Chlorite	0.8	1.0	for systems with ClO <sub>2</sub>

MRDLG - Maximum Residual Disinfectant Level Goal

MRDL - Maximum Residual Disinfectant Level

MCLG - Maximum Contaminant Level Goal

MCL - Maximum Contaminant Level

## Surface Water Regulations

### Background

The various Surface Water Treatment Rules govern water supplies whose source of drinking water is surface water, which it defines as “all water which is open to the atmosphere and subject to surface runoff” such as rivers, lakes, and reservoirs. Surface water is particularly susceptible to microbial contamination from sewage treatment plant discharges and runoff from storm water and snow melt. These sources often contain high levels of fecal microbes that originated in livestock wastes or septic systems. The Surface Water Treatment Rules set forth requirements for removal and / or inactivation of these contaminants.

### Previous Surface Water Treatment Rules

The original Surface Water Treatment Rule (1979) sets non-enforceable health goals, or Maximum Contaminant Level Goals (MCLGs), for *Legionella*, *Giardia*, and viruses at zero because any amount of exposure to these contaminants represents some health risk. Since measuring disease-causing microbes in drinking water is not considered to be feasible, USEPA established a treatment technique in this rule rather than an MCL. Under the rule, all systems must filter and disinfect their water to provide a minimum of 99.9 percent combined removal and inactivation of *Giardia* and 99.99 percent of viruses. The adequacy of the filtration process is established by measuring turbidity (a measure of the amount of particles) in the treated water

and determining if it meets USEPA's performance standard. Further, to assure adequate microbial protection in the distribution system, water systems are also required to provide continuous disinfection of the drinking water entering the distribution system and to maintain a detectable disinfectant level within the distribution system.

#### Interim Enhanced Surface Water Treatment Rule

The Interim Enhanced Surface Water Treatment Rule (1997) applies to systems using surface water or ground water under the direct influence of surface water that serve 10,000 or more persons. The rule also includes provisions for states to conduct sanitary surveys for surface water systems regardless of system size. The rule builds upon the treatment technique requirements of the original Surface Water Treatment Rule with the following key additions and modifications:

- MCLG of zero for *Cryptosporidium*
- 2-log *Cryptosporidium* removal requirements for systems that filter
- Strengthened combined filter effluent turbidity performance standards
- Individual filter turbidity monitoring provisions
- Disinfection profiling and benchmarking provisions
- Systems using ground water under the direct influence of surface water now subject to the new rules dealing with *Cryptosporidium*
- Inclusion of *Cryptosporidium* in the watershed control requirements for unfiltered public water systems
- Requirements for covers on new finished water reservoirs
- Sanitary surveys, conducted by states, for all surface water systems regardless of size

#### Long Term 1 Enhanced Surface Water Treatment Rule (LT1 SWTR)

While the Interim Enhanced Surface Water Treatment Rule only applies to systems serving 10,000 or more people, the Long Term 1 Enhanced Surface Water Treatment Rule (2002) is designed to strengthen microbial controls for systems serving fewer than 10,000 people. The rule will also prevent significant increase in microbial risk where small systems take steps to implement the Stage 1 Disinfectants and Disinfection Byproducts Rule. The Long Term 1 Rule generally tracks the approaches used in the Interim Enhanced Surface Water Treatment Rule for improved turbidity control, including individual filter monitoring and reporting.

#### Long Term 2 Enhanced Surface Water Treatment Rule (LT2 SWTR)

The purpose of the LT2 SWTR is to reduce disease incidence associated with *Cryptosporidium* and other pathogenic microorganisms in drinking water. The rule applies to all public water systems that use surface water or ground water that is under the direct influence of surface water regardless of the number of people served. The rule bolsters existing regulations and provides a higher level of protection of drinking water supplies by:

- Targeting additional *Cryptosporidium* treatment requirements to higher risk systems



- Requiring provisions to reduce risks from uncovered finished water storage facilities
- Providing provisions to ensure that systems maintain microbial protection as they take steps to reduce the formation of disinfection byproducts

Systems initially monitor their water sources to determine treatment requirements. This monitoring involves two years of monthly sampling for *Cryptosporidium*. To reduce monitoring costs, small filtered water systems will first monitor for *E. coli*—a bacterium that is less expensive to analyze than *Cryptosporidium*—and will monitor for *Cryptosporidium* only if their *E. coli* results exceed specified concentration levels.

Filtered water systems will be classified in one of four treatment categories (bins) based on their monitoring results. Most systems are expected to be classified in the lowest bin and will face no additional requirements. Systems classified in higher bins must provide additional water treatment to further reduce *Cryptosporidium* levels by 90 to 99.7 percent (1.0 to 2.5-log), depending on the bin. Systems will select from different treatment and management options in a “microbial toolbox” to meet their additional treatment requirements. All unfiltered water systems must provide at least 99 or 99.9 percent (2 or 3-log) inactivation of *Cryptosporidium*, depending on the results of their monitoring.

Additionally, systems that store treated water in open reservoirs must either cover the reservoir or treat the reservoir discharge to inactivate 4-log virus, 3-log *Giardia lamblia*, and 2-log *Cryptosporidium*. These requirements are necessary to protect against the contamination of water that occurs in open reservoirs.

Finally, systems must review their current level of microbial treatment before making a significant change in their disinfection practice. This review will assist systems in maintaining protection against microbial pathogens as they take steps to reduce the formation of disinfection byproducts under the Stage 2 DBPR, which USEPA is finalizing along with the LT2 ESWTR.

### **Arsenic Rule**

In January 2001, USEPA reduced the MCL for arsenic from 0.05 mg/L to 0.010 mg/L based on new health data.

### **Radionuclides Rule**

In 2000, USEPA revised the existing radionuclides regulation, which had been in effect since 1977, by requiring new monitoring provisions that will ensure that all customers of community water systems will receive water that meets the appropriate limits for radionuclides in drinking water. This included a standard for uranium as required by the 1986 Amendments to the Safe Drinking Water Act. The current standards are:

- Combined radium 226/228 standard of 5 pCi/L
- Gross alpha standard for all alphas of 15 pCi/L (not including radon and uranium)
- Combined standard of 4 mrem/year for beta emitters
- Uranium standard of 30 µg/L

### **Lead and Copper Rule Revisions**

In 1991, USEPA published the Lead and Copper Rule in an attempt to control lead and copper in drinking water. The rule aimed to minimize lead and copper in drinking water, primarily by reducing water corrosivity. Lead and copper enter drinking water primarily through plumbing materials. Exposure to lead and copper may cause health problems ranging from stomach distress to brain damage.

In the Lead and Copper Rule, USEPA established “Action Levels” for lead and copper. Based on first-draw samples collected at taps within the distribution system, lead and copper concentrations must be less than 0.015 mg/L and 1.3 mg/L, respectively, in ninety percent of the samples. Selected sample sites must consist of single-family residences which contain copper pipes with lead solder installed after 1982, which contain lead pipes, or which are served by a lead service line. Following implementation of state-specified “optimal” treatment to minimize lead and copper concentrations at consumer taps, annual follow-up monitoring is required. If the results of follow-up monitoring indicated that the system is consistently in compliance with the lead and copper Action Levels, the state may elect to reduce the annual monitoring requirements. Should follow-up monitoring indicate noncompliance, the utility is required to initiate a public education program, collect additional water quality samples, and possibly begin a program of replacing lead service lines.

In 2000, USEPA published minor revisions to the Lead and Copper Rule. These revisions streamline and reduce monitoring and reporting burden, and address implementation problems and issues arising from legal challenges. The minor revisions addressed implementation problems and issues arising from legal challenges to the 1991 rule.

USEPA issued Short-Term Revisions to the Lead and Copper Rule in late 2007 that covered a number of issues:

- The revisions addressed confusion about sample collection by clarifying language that speaks to the number of samples required and the number of sites from which samples should be collected. It also modified definitions for monitoring and compliance periods to make it clear that all samples must be taken within the same calendar year. Finally, the revisions added a new reduced monitoring requirement, which prevents water systems above the lead action level to remain on a reduced monitoring schedule.
- The revisions require water systems to provide advanced notification and gain the approval of the primacy agency for intended changes in treatment or source water that could increase corrosion of lead.
- The revisions require that all utilities provide notification of tap water monitoring results for lead to owners and/or occupants of homes and buildings who consume water from the taps that are part of the utility’s sampling program.
- The revisions add a requirement for utilities to reconsider previously “tested-out” lines when resuming lead service line replacement programs.
- The revisions change the content of the message to be provided to consumers in the event of a lead action level exceedance, changes how the materials are delivered to consumers, and the timeframe in which materials must be delivered.

## **Ground Water Rule**

USEPA published the final Ground Water Rule (GWR) in the Federal Register on November 8, 2006. The purpose of the rule is to provide for increased protection against microbial pathogens in public water systems that use ground water sources. USEPA is particularly concerned about ground water systems that are susceptible to fecal contamination since disease-causing pathogens may be found in fecal contamination including *E. coli*, *enterococci*, and coliphage.

The Ground Water Rule applies to public water systems that serve ground water. The rule also applies to any system that mixes surface and ground water, where the ground water is not treated in by the surface water treatment process. The risk-targeting strategy incorporated into the Ground Water Rule provides for:

- Regular sanitary surveys of public water systems to look for significant deficiencies in key operational areas;
- Triggered source water monitoring when a system that does not sufficiently disinfect drinking water identifies a positive sample during its Total Coliform Rule monitoring and assessment monitoring (at the option of the state) targeted at high-risk systems;
- Implementation of corrective actions by ground water systems with a significant deficiency or evidence of source water fecal contamination to reduce the risk of contamination; and,
- Compliance monitoring for systems that are sufficiently disinfecting drinking water to ensure that the treatment is effective at removing pathogens.

The compliance date for triggered monitoring (and associated corrective actions) and compliance monitoring was December 1, 2009. There are no timeframes associated with the assessment monitoring because it is at the option of state. States must complete their initial round of sanitary surveys by December 31, 2012 for most community water systems. States will have until December 31, 2014 to complete the initial sanitary survey for community water systems that are identified by the state as outstanding performers and non-community water systems.

### **Total Coliform Rule / Distribution System Rule**

USEPA is in the process of developing revisions to the Total Coliform Rule (TCR) that may include a distribution system component, with focus on areas such as repair / maintenance activities, the amount of time water can be in the distribution system (i.e. controlling water age), and cross-connection control. This framework for the rule was negotiated by a group formed under the Federal Advisory Committee Act and an Agreement in Principle was signed on September 18, 2008. USEPA solicited comment on the proposed rule in July 2010 and is expected to issue the final rule in 2011.

### **Radon**

The 1991 proposed standard for radon was withdrawn under the 1996 SDWA Amendments. Under the new SDWA Amendments, the USEPA prepared a risk assessment study for radon in drinking water using the best available science. In addition, USEPA directed an assessment of the health risk reduction benefits that are associated with reducing radon concentrations in indoor air. The USEPA published a health risk reduction and cost analysis in February 1999, for exposure to radon in drinking water and air. This included a discussion on the costs and benefits of multimedia mitigation programs. The MCLG and MCL for radon were proposed in

November 1999 at 0 pCi/L and 300 pCi/L, respectively. An alternative MCL was proposed at 4,000 pCi/L with a Multimedia Mitigation program (MMM) to address radon risks in indoor air. The State or Community Water System (serving over 10,000 persons) can develop a MMM program. Most Community Water Supplies (CWSs) serving 10,000 or less are expected to meet the Alternative Maximum Contaminant Level (AMCL) and to participate in a State MMM. The USEPA is strongly encouraging States to take full advantage of the flexibility and risk reduction opportunities in the MMM program. The USEPA fact sheet on Radon states, "It is more cost-effective to reduce risk from radon exposure from indoor air, than from drinking water". Radon is generally not found in surface water at levels of concern, but is present at high levels in some groundwater sources.

States regulators have indicated that implementing an MCL / AMCL regulation would be difficult. However, since the regulatory construct was included as part of the 1996 Amendments to the Safe Drinking Water Act, USEPA would be hard pressed to pursue another approach. Therefore, it is unlikely that the rule will be promulgated as proposed and USEPA has not indicated an expected promulgation date.

### **Regulating New Contaminants**

The 1996 SDWA Amendments include a process that USEPA must follow to identify new contaminants which may require Federal regulation in the future. Specifically, USEPA must periodically release a Contaminant Candidate List (CCL), which is a list of unregulated contaminants that it uses to prioritize research and data collection efforts to help make a determination whether to regulate a specific contaminant. USEPA must make "regulatory determinations" on at least five contaminants every five years – this could include a "determination" to regulate, to not regulate, to issue a health advisory, or that no action is necessary. When making a "determination" to regulate, the law requires that USEPA consider three areas: 1) projected adverse health effects from the contaminant; 2) the extent of occurrence of the contaminant in drinking water; and 3) whether regulation of the contaminant would present a "meaningful opportunity" for reducing risks to health.

Through the first and second CCL processes (CCL1 and CCL2), USEPA has made regulatory determinations that 20 contaminants do not need to be regulated. In September 2009, USEPA finalized the list of contaminants for inclusion on CCL 3; the final list includes 104 chemicals or chemical groups and 12 microbiological contaminants; preliminary regulatory determinations are expected before the end of 2011.

Related to the CCL process is the Unregulated Contaminant Monitoring Rule (UCMR) program. Under this program, monitoring is required at selected water systems to determine the occurrence levels for contaminants that may occur in drinking water and may potentially have an adverse health impact, but are not yet regulated at the Federal level. Most contaminants that are monitored under the UCMR are listed on the CCL. The third Unregulated Contaminant Monitoring Regulation (UCMR 3) was proposed on February 17, 2011. As proposed, UCMR 3 would require monitoring for 30 contaminants using EPA and/or consensus organization analytical methods during 2013-2015.

More information on the UCMR, including unregulated contaminants currently included in the rule, is available at <http://www.epa.gov/safewater/ucmr/index.html>

### **2.4.2 Design and Construction Standards**

Many states have adopted regulations governing water quality that are identical to federal regulations. However, in several instances, states have established regulations and standards that are more stringent than federal requirements, sometimes by a significant amount. For a state to be granted primacy by the USEPA, that state's adopted regulations must be at least as stringent as the federal regulations.

The Recommended Standards for Water Works has been used by many States to form the basis of standards for the design and construction of public water supply systems. It should be noted that the actual design of facilities may vary from these standards, and will be subject to review by each state. State-specific regulations are discussed in the Production Section of this report. Some of the major provisions of the Recommended Standards for Water Works are summarized in **Table A-4**.

**Table A-4**

**Major Provisions of the Recommended Standards for Water Works**

Treatment Process	Summary of Standard
Mixing	<ul style="list-style-type: none"> <li>The detention period should be no less than 30 seconds.</li> </ul>
Flocculation	<ul style="list-style-type: none"> <li>The detention period should be no less than 30 minutes.</li> <li>Duplicate facilities should be provided.</li> </ul>
Sedimentation	<ul style="list-style-type: none"> <li>The detention period for conventional basins should be no less than 4 hours.</li> <li>At least two units should be provided for redundancy.</li> <li>Inlet and outlet devices should be provided to provide uniform settling velocities and to minimize short-circuiting.</li> <li>Mechanical solids collecting equipment should be provided.</li> </ul>
Filtration	<ul style="list-style-type: none"> <li>At least two units should be provided for redundancy, and provisions should be made to assure continuity of service with (1) filter removed from operation.</li> <li>The normal filtration rate is 2 gpm/ft<sup>2</sup>, but rates can be increased to 3 gpm/ft<sup>2</sup> for greensand media and 4 gpm/ft<sup>2</sup> for dual media.</li> <li>Indicating rate-of-flow controllers, loss-of-head gauges and filter-to-waste piping should be provided for each filter.</li> <li>Provisions should be made to backwash filters at a rate between 15 and 20 gpm/ft<sup>2</sup> for a period not less than 15 minutes. Rate-of-flow control should also be provided.</li> <li>Filter media should have a total depth between 24 and 30 inches.</li> </ul>
Disinfection	<ul style="list-style-type: none"> <li>Standby equipment shall be provided to replace the largest unit during shutdowns.</li> </ul>

## 2.5 Underground Storage Tank Management

Federal regulations call for upgrading existing underground fuel and chemical storage tanks to provide leak detection, corrosion protection and spill/overflow protection.

## 2.6 Electrical Service and Standby Power

In order to provide an acceptable degree of reliability, the ability to produce 100% of the projected average day demand is desirable in each distribution system pressure zone. In some instances, the availability of a sufficient volume of finished storage water or interconnections helps to meet this guideline. Emergency generators, engine driven pumps and/or dual utility power feeds can also be used to provide temporary power to the plant during an outage.

## **2.7 Partnership for Safe Drinking Water**

The Partnership for Safe Drinking Water is a voluntary cooperative effort between USEPA, American Water Works Association (AWWA), and other drinking water organizations to help ensure the safety of America's drinking water. According to AWWA, "The Partnership provides a new measure of safety by implementing prevention programs where legislation or regulation do not exist. The preventative measures are based around optimizing plant performance and thus increasing protection against microbial contamination in America's drinking water supply."

The Partnership agreement requires participating utilities to attempt to reach certain performance goals and to perform a self-assessment of surface water plant performance. Performance criteria include the following targets:

- Clarified turbidities less than 3.0 NTU in 95% of samples,
- Filter effluent turbidities less than 0.1 NTU in 100% of samples,
- Filter effluent turbidities less than 0.3 NTU for less than 15 minutes following filter backwash.

American Water has targeted these performance criteria as treatment goals, and has implemented operational changes at various treatment plants where necessary and practical to consistently meet the targets.

## **2.8 AW Guidelines for Chemical Feed, Storage and Containment**

Compressed gas and liquid treatment chemicals used in the water industry are generally stored and fed in a concentrated form with many being strong acids and bases. While these chemicals are necessary to provide safe, potable water, proper management of the chemicals is necessary to protect the consumer, American Water's personnel, and the environment. In addition, many of these chemicals can damage American Water's facilities if the proper equipment and safeguards are not provided.

Chemical feed and storage facilities at American Water treatment plants are evaluated to determine adequacy compared to the AW Standard for Liquid Chemical Storage, Feed, and Containment. These guidelines go beyond the minimum requirements of the Recommended Standards for Water Works by providing increased protection to consumers, Company personnel and facilities, and the environment.

Feed equipment is considered adequate if sufficient capacity is available to treat the water while considering maximum flow and feed rates with the largest chemical feeder or pump out of service. Chemical storage is considered adequate if 31 days storage is available while considering maximum flow and feed rates, and provisions for containment. Primary containment is defined as the container holding the chemical. Secondary containment is a structure designated to hold spillage or leakage. The minimum secondary containment volume is considered to be 110 percent of the largest storage tank volume within the containment area.

Facilities to house compressed gas feed systems are required to provide safety for the operator and local population, and to ensure adequate containment in the event of a gas leak. Individual feed and storage rooms are recommended for all installations. The storage room should contain all elements of the feed system which are under pressure, and be sized for a minimum 30 day supply.

More specific guidance for liquid and compressed gas feed systems is provided in the AW Engineering Standards: Liquid Chemical Storage, Feed and Containment, and Compressed Gas Feed Systems and Storage Facilities. An analysis of chemical facilities can be found in the Production Section of this report.

### **3.0 DISTRIBUTION PIPING, PUMP AND STORAGE EVALUATION CRITERIA**

The ability of distribution system facilities to provide safe, adequate and reliable service to customers is analyzed based on forecasted customer demands and fire protection requirements. Computer modeling of the distribution system is utilized as a tool in the analysis to determine system deficiencies and evaluate the effectiveness of proposed improvements under future demand conditions. Published reports from the Insurance Service Office (ISO) are used as a guideline in analyzing the ability of various system components to deliver fire protection. The ISO is a major source of information, products, and services related to property and liability risk; and one of their important services is to evaluate the fire suppression delivery systems of jurisdictions around the country. The result of those reviews is a classification number that ISO distributes to insurers, who then use the Public Protection Classification (PPC) information to help establish fair premiums for fire insurance. Generally, communities with better fire protection are offered lower insurance premiums.

#### **3.1 Distribution System Analysis Methodology**

The analysis of American Water's facilities includes pipelines, storage tanks, booster stations and emergency power provisions. Under peak demand conditions, a number of minimum standards should be met for each of these facilities. These standards are described below.

- **Pipelines** - Distribution system mains are considered adequate if they can meet customer demand at a minimum system pressure of 20 psi. Fire protection requirements should be met while maintaining a minimum pressure of 20 psi in the distribution system. (Note: State and local guidelines may require that higher pressures be maintained.)
- **Distribution Storage** - Storage facilities are considered adequate if the effective volume of the facility, or groups of facilities acting together, provide sufficient volume to meet equalization needs and a fire protection reserve (if necessary) during maximum day demand events. In addition, State regulations are also considered as they relate to a particular distribution system.

The effective volume of storage is that quantity which can be used from the tank while maintaining adequate system pressures under the domestic and fire flow conditions outlined above for distribution mains. The ideal equalization volume is that quantity of water needed to allow the production plant or booster station output rates to be constant and equal to the daily demand on the maximum day of the year. The actual use of equalization storage enables a reasonably constant rate of treatment plant or booster station operation, and thereby promotes overall system efficiency and economy.

Existing storage capacity was also analyzed to determine its contribution to overall system reliability. Where appropriate, recommendations are made if additional storage will significantly improve system reliability (e.g., ability of the system to maintain service to customers during an emergency, such as a power outage, a chemical or fuel spill impacting the source of supply, or a large main break).

Other factors considered when determining storage reserves are the fire protection ratings published by ISO. Storage reserves for a given pressure zone are calculated on the basis of the highest published ISO Needed Flow and duration. The impact of storage volume on water quality is also considered when sizing proposed storage facilities. ISO's municipal fire protection testing may identify sites with needed fire flows greater than 3,500 gpm for a duration of three hours. In many pressure zones, particularly in residential areas, the identified maximum is less than 3,500 gpm. Where individual structures are assigned ISO Needed Flows above 3,500 gpm, it is assumed that fire protection needs in excess of 3,500 gpm at these sites will be satisfied through the development of individual customer-owned fire suppression systems.

- **Distribution System Booster Stations** - Booster pumping facilities are considered adequate if the capacity of the pump stations, with the largest pumping unit out of service, is sufficient to meet the maximum daily demand projected to occur within each pressure zone. When storage facilities are not present in a pressure zone, the booster station pumps should be able to meet peak instantaneous demands at adequate pressure. In pressure zones without storage, the booster pumps may also provide the only source of fire protection.
- **Emergency Power** - The ability to provide continuous service during a power outage is critical to a system's reliability and depends on several factors including: the nature of the electrical service (i.e., service from one vs. two substations), the presence of any floating storage within the pressure zone, standby electrical generating capacity, and the availability of pumps which can be driven by diesel fuel or natural gas.

During a power outage, the demand is assumed to be 100 percent of the average day demand. Analysis of outages in other systems has shown this to be a reasonable estimate of customer usage under these conditions.

The facilities within a pressure zone are considered adequate if 100 percent of the projected average day demand can be met from emergency powered pumping facilities, or if floating storage facilities are available, to provide the needed demand for more than 24 hours.

A number of distribution system improvement projects are recommended in this report with specific justification such as assuring safe, adequate, and reliable general service, while others are primarily to improve water transmission, provide redundancy, and to enhance fire protection. Each type of project has multiple benefits that may result in general improvement of the system in terms of increased pressures, flows, reliability, and more stable water quality.

### **3.2 Distribution System Computer Modeling**

The computer model has become a valuable tool for developing future distribution system improvement programs. A computer model is developed for the distribution system using the WATERCAD software program. Data relating to pipe diameter, length, material, age and connection points are obtained from distribution maps and records supplied by the Water Company. Pipe friction coefficients (or C-factors) are determined for selected pipelines utilizing



available flow test data, or standard values based on the age, material and size of pipeline. These results are then used to estimate C-factors for other pipelines of similar diameter, age and material.

Customer demands are modeled by applying meter route data at the appropriate pipeline junctions in the computer model to simulate customer demands. Large customers are considered individually in order to apply specific peaking factors to metered consumption. After any newly installed pipes, tanks, or booster stations are added to the model, the output data are compared with known pressures, flows, and water levels obtained from data recorders at key locations in the actual system. Consumption data or pipeline data are then adjusted to achieve the best possible correlation between actual and modeled parameters. Three demand scenarios are generally considered:

- The peak hour demand on the maximum day.
- The minimum hour demand on the maximum day (during night time storage refill conditions).
- The maximum day flow for use in evaluating fire protection.

After calibration, future demands are allocated throughout the system to sectors of projected growth for the individual scenarios. Successive computer runs are then made to test various alternatives of distribution system improvements and their success in solving system problems. Final selection of distribution system improvement projects is based in part on computer simulations of water system hydraulics under these various present and future demand scenarios.

### **3.3 Property Sizing for Distribution System Storage Tanks**

Where projects are recommended involving the construction of distribution storage tanks to meet equalization and fire protection storage needs in the system, preliminary sites are chosen for planning purposes. In the preliminary design phase of such projects, the final site selection and purchase of appropriate property for the tank is undertaken. The American Water guideline "Property Sizing for Steel Tank Construction" includes the following considerations for lot sizing:

- Obtain a lot large enough to provide an adequate layout area for steel plates, columns, etc., during tank erection.
- The size of the lot should be sufficient to provide reasonable isolation from existing or possible future residential or industrial building sites or parking facilities.
- The size of the lot should also be sufficient to minimize airborne migration during blast cleaning and painting operations (additional containment procedures may be required by regulatory agencies).

Sufficient property should be purchased to provide a minimum of 100 feet from the tank sidewall. In cases where elevated tanks are involved, the 100-foot dimension would be from the sidewall of the bowl. Additionally, in the case of an elevated tank, the length of each side of the lot should be at least twice the height of the tank. The size of the lot for an elevated tank would be the greater of the two criteria. In addition, specific regulatory requirements regarding site screening may increase lot size requirements.

Another factor for consideration when purchasing a tank site is the handling of the water produced during an accidental overflow event. These flows typically involve high volumes for short durations. If an adequately sized conduit or pond, which can be permitted to receive intermittent flows of chlorinated water, is not easily accessible from the tank site, sufficient property should be purchased to allow construction of an overflow retention pond at the site. The general rule for estimating the size of the retention pond is based on the assumption that it may take about 30 minutes for American Water's operating personnel to valve off the tank to stop an overflow event.

Prior to purchasing property for a tank site, the need and potential for constructing multiple tanks at the site should be considered. This may be either a present or future need. If additional tanks may be located at the site in the future, a preliminary plan of the future site layout should be completed to define the appropriate lot size.

### **3.4 Distribution System Main Replacement Programs**

Many water distribution networks operated throughout American Water have been developed over many years. In the past, distribution mains have been acquired or installed using then-current design standards that, in some cases, do not conform to present day engineering design practice. Some mains that were installed under these historically acceptable practices are now unable to satisfy current requirements. Many of American Water's operating companies have an ongoing main replacement program to address these deficiencies.

Mains in need of replacement typically include pipes that are 4-inch diameter or smaller, unlined, cast iron, or galvanized iron pipe. Priority under the main replacement programs is given to those pipes which have become maintenance problems. It is recommended that Investment Projects continue to be developed with projects prioritized on an annual basis. The Investment Projects should be revised annually as mains are replaced and newer priorities are added.

The design of main replacements and extensions is normally based upon projected system demands and the maximum needed fire flow, but the following general criteria should also be followed:

- Mains should not be less than 8-inches in diameter, except where the main does not serve a fire hydrant and there is no possible further extension of the facilities beyond 500 feet, or where proper engineering justification for a smaller main can be made.
- Major transmission mains or mains which potentially can serve as major transmission mains should not be less than 12-inches in diameter.

Many pipelines that will be constructed in the future to reinforce an existing system will be installed parallel to smaller, older pipelines. In most instances, it is recommended that the old main be retired and that all fire hydrants and customer services be connected to the new main. As part of American Water's policy, any lead services encountered during water main installation are generally replaced as part of that construction project.

### **3.5 Tank Maintenance Programs**

Each operating system has developed a tank maintenance program to schedule routine inspections, evaluate the condition, and identify needed improvements. Any deficiencies are

then budgeted for improvements. A tank inventory should be maintained of all steel tanks utilized in American Water including distribution storage, washwater, sedimentation and wastewater holding tanks.

### 3.6 Geographic Information Systems

GIS (Geographic Information Systems) software provides an association between graphic data from maps and drawings and textual data in a database. Facility data such as hydrant records, tap orders, and maintenance history can be linked to American Water's distribution system maps, providing a geographic reference for managed facilities.

GIS systems replace the need to use Computer-Aided Drafting (CAD) to maintain distribution system maps, thus eliminating the need for maintaining two separate graphics software systems: one to perform CAD operations and one to perform facility maintenance tracking of distribution system infrastructure and GIS operations. This is particularly advantageous to utility companies since CAD software is commonly used to maintain distribution system maps.

GIS software provides a means to perform analyses on geographic areas. GIS would be a valuable tool for engineering or internal accounting purposes, and for obtaining data for use by outside entities. Capabilities of GIS systems include:

- **Distribution System Mapping** - eliminates need of manual drafting for map updates; consolidates data in one location.
- **Facilities Management** - provides computerized inventory and maintenance programs for distribution system facilities; allows link between facilities and maintenance data; improves data collection and reporting.
- **Engineering and Operations Queries and Reports** - integrates data so that information retrieval is an automated process; provides the ability to query more than one source of data within single or multiple geographic areas for the purpose of developing maintenance programs.
- **Other Features** – can provide a link between customer information, facilities management data and water company maps for geographic analyses; furnishes a potential link to existing Distributed Control Systems (DCS), distribution system computer models, and water quality analyses.

With the increasing use of information systems to collect and manage data, and the higher performance of newer computing equipment, consideration should be given to implementation of or updating to a GIS system as existing data systems become outdated or obsolete. Time and labor needed to manually maintain, update and query multiple disparate sources of information should be reduced, while facility maintenance can be better managed and system analysis for determining and prioritizing capital improvement needs can be significantly enhanced.

### 4.0 AMERICAN WATER'S ROLE IN REGIONALIZATION

Regionalization opportunities are evaluated to determine if a consolidated solution to water supply problems in a particular area is feasible or if management services opportunities are

viable. Regionalization of water systems can often provide economies of scale, avoid duplication of facilities, and provide more effective service to customers. Water systems within a specific geographic area can regionalize to benefit from shared treatment facilities or pumping facilities. Interconnections between water systems can improve reliability and enhance the fire protection system. In the case of management services, expertise within American Water can be utilized to improve other area water supplies and benefit the State's residents.

American Water's technical capability and financial resources have led to acquisition and regionalization opportunities. In general, activities have involved acquiring water systems near an existing American Water service area, and physically consolidating the new system's distribution network into the existing American Water distribution system. In the case of remote water systems, they are operated as satellite service areas, but with management from the American Water's corporate office.

## **5.0 WATER RESOURCE MANAGEMENT**

Water resource management has become an important part of the planning process. Water resource management refers to those activities and programs designed to protect, maintain and monitor efficient use of water resources. These measures include managing water resources from both the supply and demand side. Such activities include: meter maintenance and replacement programs, leak detection and repair, scheduled water main replacement, and drought management.

Metering provides an accurate accounting of water flowing through the system, thereby helping to determine where losses and excess usage may occur. American Water policy is to meter all customers. In some cases, commercial meters on apartment buildings or other multi-tenant facilities may have been changed over to individual meters. Also, fire services may be equipped with flow indicators. Residential service meters are replaced after a predetermined interval, based on State guidelines. Larger meters should be tested on a routine basis. On the supply side, all source of supply meters should be tested and calibrated regularly.

Water resource management through leak detection and repair results in reduced unaccounted-for water by reducing water losses. Reducing the volume of unaccounted-for water can improve system hydraulics, reduce costs for water treatment and pumping, and in some cases can delay capacity-oriented construction. In situations where water demand exceeds supply, reducing unaccounted-for water can result in the availability of more water for customer consumption.

Leak detection surveys should be performed on an ongoing basis. In addition, valves should be sounded for leaks as part of a valve exercise program. Hydrants should be inspected on a regular basis and tested for leaks. Customer meters should be sounded on all service calls, and whenever a curb box is relocated or raised for paving.

Replacement of aged facilities can conserve water through controlling system losses. For instance, unlined pipelines can be a source of leakage. In addition to the major main replacements recommended in this report, mains that have known leakage problems or require frequent maintenance are given priority under ongoing main replacement programs. The program concentrates on mains which are 6-inches in diameter or smaller. These mains are frequently constructed from unlined, cast, or galvanized iron.

All of these measures are aimed at a water resource management program that controls water losses, protects the sources of supply, and maintains efficient and economical delivery and

usage of water resources. Continuation of these practices will assist in providing high quality service to the customer.



April 4, 2012

Mr. Jason Hurt, P.E.  
Kentucky American Water  
2300 Richmond Road  
Lexington, KY 40502

Re: Owenton, Kentucky, Water Treatment Plant Improvements

Dear Jason,

This letter is in response to your request to provide preliminary capital costs for several Kentucky American Water (KAW) identified improvements to the Owenton intake and water treatment plant. The following is our understanding of the desired improvements.

1. Chemical Bulk Storage Improvements: These improvements were designed to bring chemical storage and feed facilities to American Water standards and improve delivery access by bulk chemical suppliers. The improvements include a new chemical feed building that houses bulk liquid chemicals, access road improvements, and a chlorine scrubber. Strand Associates, Inc.<sup>®</sup> provided preliminary design for these improvements in 2008.
2. Chemical Pretreatment Reliability Improvements: These improvements are intended to address a lack of redundancy in the existing sedimentation- related process. KAW desires a full capacity process to provide treatment when the existing process is taken out of service. The improvements include horizontal shaft flocculators and a sedimentation process utilizing plate settlers in a package metal tank.
3. Sludge Handling Improvements: These improvements are intended to improve treatment of solids residuals from sedimentation and filtration processes. KAW desires a gravity sludge thickener and belt filter press.
4. Filter Redundancy Improvements: These improvements are intended to improve redundancy of the filtration process. KAW desires two additional filters of equal size as the existing filters.
5. Emergency Power Reliability Improvements: These improvements are intended to provide backup power to both treatment plant and intake facilities. KAW desires a standby generator at both locations.
6. SCADA Improvements: These improvements are intended to improve the efficiency of operations and update antiquated equipment controls. KAW desires supervisory control and data acquisition (SCADA) graphics and controls of various existing and new equipment.
7. Raw Water Intake Improvements: These improvements are intended to provide a more reliable source water supply than the existing intake on Severn Creek. KAW desires a new intake on

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Mr. Jason Hurt, P.E.  
Kentucky American Water  
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the Kentucky River near its existing intake on Severn Creek. New raw water pumps, permanganate feed system, and security improvements are also included.

8. New Storage Tank: These improvements are intended to stabilize system pressures and meet KAW's need for additional usable storage. It will also allow for the Fairgrounds tank to be taken out of service for required maintenance. KAW desires the tank to be a new 1-million-gallon elevated storage tank.

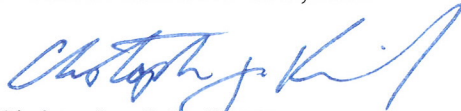
The following table provides a preliminary opinion of probable cost in second quarter 2012 dollars. Each improvement includes construction and engineering costs and contingency.

Capital Improvement Description	Cost
Chemical Bulk Storage Improvements	\$2,100,000
Pretreatment Reliability Improvements	\$1,200,000
Sludge Handling Improvements	\$1,800,000
Filter Reliability Improvements	\$1,700,000
Emergency Power Reliability Improvements	\$600,000
SCADA Improvements	\$300,000
Raw Water Intake Improvements	\$1,400,000
New Storage Tank	\$2,300,000
<b>Total</b>	<b>\$11,400,000</b>

Where possible, several improvement costs were based on recent projects of similar size. However, several other costs included published cost curves based on similarly sized treatment capacity. The intake improvement costs were based primarily on the City of Owenton's budgeted cost of the project as developed by MSE Inc. and reflected in 2012 dollars utilizing Engineering News Record's construction indices. The chemical bulk feed and intake improvements had some level of detailed design associated with them. Total capital costs could change significantly as the projects are further defined and KAW's preferences evolve.

Sincerely,

STRAND ASSOCIATES, INC.®



Christopher J. Keil, P.E.

c: Lance Williams, Kentucky American Water

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

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**Witness: Lance Williams / Keith Cartier**

61. Describe the effects on the operation of the Owenton Water Treatment Plant if the raw water intake is moved to the Kentucky River.

**Response:**

The primary operational impact on the Owenton Water Treatment Plant if the raw water intake is moved to the Kentucky River would be improvements in both the quality and availability of raw water. A detailed analysis of the treatment cost differences of moving the intake source from the current relocation to the Kentucky River has not been completed, although the reasonable expectation is that chemical usage will decrease with the probable decrease in the concentration of total organics in the raw river water.

There will also be an increase in the power required to deliver the raw water to the existing Owenton Water Treatment Plant. The Northern Connection Study was based on a preliminary design that used a low-head pump to pump the water from the Kentucky River to the existing Severn Creek pump station, which would then pump the water to the Owenton Water Treatment Plant. This power increase was not factored into the Study.

From an operating and maintenance perspective, an additional facility (the new intake) would be added with its associated equipment and facility costs. The existing Severn Creek facility and its associated equipment and costs would remain.

If the certificate to connect to KRS II is not granted and KAW moves to design for upgrading the Owenton Water Treatment Plant, KAW will undertake a more thorough analysis and design of an intake facility that may bypass the existing Severn Creek facility and pump directly to the Owenton Water Treatment Plant. The preliminary design completed for the City of Owenton that incorporated the existing Severn Creek facility was prepared prior to KAW operating the facility.



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

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**Witness:**     **Keith Cartier / Lance Williams**

62.     Describe the security and safety measures currently in place at the Severn Creek raw water intake.

**Response:**

The safety and security measures currently in place are an eye wash station; chemical containment basin; two locking doors to prevent access; and a security light.

**KENTUCKY-AMERICAN WATER COMPANY**  
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**Witness:**      **Keith Cartier / Lance Williams**

63.      List each security and safety measure that Kentucky-American has implemented for the Severn Creek raw water intake since January 1, 2006 and its cost.

**Response:**

KAW installed a security light at an approximate cost of less than \$100 in 2007 and has replaced numerous padlocks over the past six years at a cost of approximately \$45 each. The lock mechanism has been modified numerous times over the past six years with internal labor to further prevent unauthorized access. The portable eye wash station and chemical containment basin were purchased in 2010 at a combined cost of approximately \$500.

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**Witness:**      **Keith Cartier / Lance Williams**

64.      List each incident involving the Severn Creek raw water intake since January 1, 2006 that resulted in a report or complaint to local law enforcement authorities.

**Response:**

To the best of KAW's knowledge, there have been no complaints or reports filed with the Kentucky State Police or Owen County Sheriff's Office for the numerous cases of graffiti, broken lights, or bullet damaged doors.

**KENTUCKY-AMERICAN WATER COMPANY**  
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**Witness: Lance Williams**

65. Provide the bids submitted to Kentucky-American for the proposed facilities.

**Response:**

Please see the attached bid tabulations for Phases 1, 2, and 3 dated February 28, 2012, which have been provided under seal and are the subject of a petition for confidential protection. The alternative bids for each of the phases are described as follows:

Phase 1 - Alternative Bids:

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

Phase 2 - Alternative Bids:

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

Phase 3 - Alternative Bids:

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

From the above alternative bids, KAW selected Phase 1 (Alternatives 3 and 4), Phase 2 (Alternative 2), and Phase 3 (Base Bid). Please see attached bid tabulations for Phase 1 (Alternatives 3 and 4) and Phase 2 (Alternative 2) that includes the contractors' bids and anticipated costs for owner-provided materials.

**THE ENTIRE ATTACHMENT TO THIS RESPONSE HAS BEEN  
PROVIDED UNDER SEAL AND IS THE SUBJECT OF A  
PETITION FOR CONFIDENTIAL PROTECTION**

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

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**Witness: Lance Williams**

66. State the date upon which the submitted bids will expire.

**Response:**

The bids for Phases 1, 2, and 3 will expire on February 28, 2013.

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

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**Witness: Lance Williams**

67. Describe the current status of easement acquisition for the proposed water transmission mains.

**Response:**

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

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

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**Witness: Lance Williams**

68. Describe the current status of property acquisition for the sites of the proposed water storage tanks and pumping stations.

**Response:**

The original Option to Purchase for the Owenton Tank site was executed on October 21, 2011. This Option to Purchase was extended on April 6, 2012, and will expire on October 1, 2012.

The original Option to Purchase for the Booster Pump Station and Tank site was executed on October 21, 2011. This Option to Purchase was extended on April 3, 2012, and will expire on October 1, 2012.



**KENTUCKY-AMERICAN WATER COMPANY**  
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**Witness: Lance Williams**

69. State the purpose(s) of the 12-inch magnetic flow meter that is included in the plans for the proposed facilities.

**Response:**

The flow meter will allow KAW to sub-meter the flow from KRS II going to Owenton through the Northern Division connection. This will allow KAW to better evaluate non-revenue water in the Northern Division.

**KENTUCKY-AMERICAN WATER COMPANY**  
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**Witness: Lance Williams**

70. Describe how Kentucky-American selected the route of the proposed water transmission main. Provide all correspondence, memoranda, electronic mail messages and other documents in which the route for the proposed water transmission main is discussed.

**Response:**

The proposed route for the water transmission main was selected by determining the shortest route between the KRS II water treatment plant along the Owen/Franklin County border and the US 127/KY 22 intersection in Owenton, KY. The US 127 corridor, which was reconstructed during the late 1990's, provided the most feasible location for the construction of the water transmission main due to its large right-of-way and its avoidance of private property easements.

It was not cost efficient to remain within the US 127 corridor near the City of Monterey due to the crossing of Cedar Creek and the large cliff to the north of this crossing. The cliff elevation increases approximately 240 feet within a 300-foot horizontal distance.

KAW bid out two alternatives to cross Cedar Creek and the cliff, which are as follows:

1. Route the water transmission main through the City of Monterey
2. Directional drill (670 feet) the water transmission main through the cliff

Routing the water transmission main through the City of Monterey provided the lower cost of the two options. Prior to bidding, KAW had considered a third alternative that included hanging the water transmission main from the existing US 127 bridge (see attached letter from Strand Associates, Inc.), but this was not favorable.

Attached is correspondence and other information regarding the proposed route. For additional information regarding how KAW selected the route of the proposed water transmission main, please see the responses to AG Data Request No. 28(b) and Staff Data Request Nos. 1, 52, 65, 72. The response to Staff Data Request No. 65 has been provided under seal and is the subject of a petition for confidential protection. Also, see Appendix B to the Engineering Feasibility Study Report that was attached to KAW's Application.



January 18, 2012

Mr. Jason M. Hurt, P.E., Project Manager  
Kentucky American Water  
2300 Richmond Road  
Lexington, KY 40502

Re: Northern Division Connection  
Monterey Bridge Crossing Encroachment Permit

Dear Mr. Hurt:

As you are aware, the Kentucky Transportation Cabinet (KYTC) rejected the initial Encroachment Permit conceptual plans for the Monterey bridge crossing and requested we resubmit a revised concept for the pipeline. The basis of the rejection was KYTC does not permit penetrations through the abutment backwall above the bearing seat elevation and requested the pipeline be routed around the abutments. Revised conceptual plans were submitted to KYTC on December 15, 2011, to reflect the requested changes. The revised plans routed the pipeline around the abutments and then directed the pipe under the bridge between the outer two most girders.

We received e-mail correspondence from Kyle Martin, KYTC District 6 Permits Department, on January 5, 2012, informing us the revised plans will not be accepted because KYTC will not allow coring through the concrete diaphragms at the piers. There was no mention of this requirement with the initial comments received from KYTC. Given this new information, it is apparent the pipeline will require attachment to the outside of the bridge.

Attachment to the outside of the bridge is one option we evaluated prior to our initial submittal. However, attachment to the outside of the bridge was not a preferred option because of room constraints, introduction of wind loads on the pipeline, and the potential for inadequate capacity of the deck overhang. The deck overhang is approximately 1 foot 10 inches, but when appropriate anchor bolt clearances are considered, the available width is reduced to less than 1 foot 6 inches. Since the proposed pipeline is insulated 16-inch-diameter ductile iron pipe, attachment to the girders is prohibited, and wind loads will be acting on the pipeline, the 1-foot 6-inch width does not provide much room for a laterally braced pipe support.

Of primary concern is the structural capacity of the deck overhang to support the pipeline loads. Standard bridge engineering practice is to check the deck overhang for all applicable loads at the critical section a specified distance from the girder centerline. Since the bridge was likely designed for standard loading, such as the parapet and deck dead load, bridge deck live load, and parapet impact loads, there is a possibility the deck overhang will not have the capacity to support the additional approximate 175 pounds per linear foot of pipe dead load. Structural analysis of the deck overhang has not been performed at this time because it is beyond the scope of our encroachment permit services, but it is advisable to perform this check prior to resubmitting another revised plan to confirm the feasibility of supporting the pipeline from the deck overhang. Additionally, the bridge record drawings will be needed to analyze the deck overhang to confirm the deck thickness and reinforcement.

Mr. Jason M. Hurt, P.E., Project Manager  
Kentucky American Water  
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January 18, 2012

Please be advised that even if an adequately braced pipe support is developed to fit within the room constraints and the deck overhang structural capacity is confirmed adequate to support the pipeline, there are no guarantees the permit will be approved. To date, all indications from KYTC leads us to believe the permit will not be approved.

Please advise if you have any questions or if you would like us to provide another proposal to evaluate attachment of the pipeline to the outside of the bridge. Please note this will be in addition to the structural analysis of the bridge as outlined in our letter dated October 26, 2011. Thank you for the opportunity to continue to serve Kentucky American Water.

Sincerely,

STRAND ASSOCIATES, INC.®



Mark C. Askin, P.E.



Re: Mr. Wallens property  
Askin, Mark to: Lance.Williams@amwater.com 07/11/2012 05:24 PM

I concur we just measured it.

Sent from my iPhone

On Jul 11, 2012, at 5:23 PM, "Lance.Williams@amwater.com"  
<Lance.Williams@amwater.com> wrote:

> See attached.

>

>

> Lance E. Williams, PE  
> Director of Engineering  
> Kentucky American Water  
> 2300 Richmond Rd.  
> Lexington, KY 40502  
> 1.859.268.6316 Office  
> 7.533.6316 Internal  
> 1.859.321.8235 Cell  
> lance.williams@amwater.com  
> ----- Forwarded by Lance E Williams/KAWC/AWWSC on 07/11/2012  
05:22 PM -----

>

> From: R Kevin Kruchinski/KAWC/AWWSC  
> To: Jason M Hurt/KAWC/AWWSC, Lance E Williams/KAWC/AWWSC  
> Date: 07/11/2012 05:11 PM  
> Subject: Mr. Wallens property

>

>

>

> Sorry, don't have everyone's email on my bberry. Just wanted to  
send this pic to you guys. 25' from centerline would be extremely  
easy construction so we should pursue a right of way option. I  
would be shocked if our old line isn't in the ROW as well. I may  
get the guys to locate next week.

>

>

>

> Kevin Kruchinski  
> Kentucky American Water  
> 102 N. Main Street Owenton, KY 40359  
> r.kruchinski@amwater.com  
> P 502-484-5118 M 859-361-1770 F 502-484-1265

>

> For quality and value, tap water is the clear choice.  
> <IMG-20120711-00057.jpg>



Re: KAW NDC - Monterey Realignment Alternatives & Additional Fees

Askin, Mark

to:

Lance.Williams@amwater.com

07/11/2012 04:05 PM

Cc:

"Jason.Hurt@amwater.com", "Tinsley, Ryan"

Hide Details

From: "Askin, Mark" <Mark.Askin@strand.com>

To: "Lance.Williams@amwater.com" <Lance.Williams@amwater.com>

Cc: "Jason.Hurt@amwater.com" <Jason.Hurt@amwater.com>, "Tinsley, Ryan" <Ryan.Tinsley@strand.com>

History: This message has been replied to.

Lance,

I am available in the morning until 9:00 am & then again in the afternoon. I can call you around 8:30 if that works.

Thanks

Sent from my iPhone

On Jul 11, 2012, at 3:56 PM, "Lance.Williams@amwater.com" <Lance.Williams@amwater.com> wrote:

Mark,

I would like to give you a call tomorrow morning to discuss to make sure I understand. Are you available and if so what time?

Lance E. Williams, PE  
Director of Engineering  
Kentucky American Water  
2300 Richmond Rd.  
Lexington, KY 40502  
1.859.268.6316 Office

7.533.6316 Internal  
1.859.321.8235 Cell  
[lance.williams@amwater.com](mailto:lance.williams@amwater.com)

From: "Askin, Mark" <[Mark.Askin@strand.com](mailto:Mark.Askin@strand.com)>  
To: "[Lance.Williams@amwater.com](mailto:Lance.Williams@amwater.com)" <[Lance.Williams@amwater.com](mailto:Lance.Williams@amwater.com)>, "[Jason.Hurt@amwater.com](mailto:Jason.Hurt@amwater.com)" <[Jason.Hurt@amwater.com](mailto:Jason.Hurt@amwater.com)>  
Cc: "Tinsley, Ryan" <[Ryan.Tinsley@strand.com](mailto:Ryan.Tinsley@strand.com)>  
Date: 07/06/2012 08:30 AM  
Subject: RE: KAW NDC - Monterey Realignment Alternatives & Additional Fees

Lance & Jason,

We signed 2 easements in Monterey. Our goal is to try to sign as many easements as possible prior to meeting with the Mayor of Monterey. We are pushing this since the mayor, based his comments, has been encouraging people to ask for more money. Any update on what we can offer Quarles to try to resolve this issue?

Thanks

Mark C. Askin, P.E.  
Strand Associates, Inc.  
325 West Main Street, Suite 710  
Louisville, KY 40202  
(502) 583-7020  
[www.strand.com](http://www.strand.com)

**From:** Askin, Mark  
**Sent:** Thursday, July 05, 2012 8:12 AM  
**To:** [Lance.Williams@amwater.com](mailto:Lance.Williams@amwater.com); [Jason.Hurt@amwater.com](mailto:Jason.Hurt@amwater.com)  
**Cc:** Tinsley, Ryan  
**Subject:** KAW NDC - Monterey Realignment Alternatives & Additional Fees

Lance & Jason,

I hope you had a good 4<sup>th</sup>. We have developed alternate alignments and cost estimates for the water transmission main through south Monterey. These revisions were required because the Joan C. Threet Trust (A-69) will not sign an easement and Jeffrey C. Quarles (A-79) wants \$25,000 to compensate for the easement. Unit prices used on our cost estimate were from Garney's bid that included owner provided materials.

In preparing the alternatives we looked at a one different alignment than we reviewed in the field. Based on KYTC right of way maps it appears there is an existing 70 foot right of way along Monterey Pike. On the attached mapping, Alternate 1A (Green) follows Monterey Pike within its right-of-way and would cost approximately \$208,620. Alternate 1B (Red) follows Monterey Pike, but then turns onto Old Bridge Street. Alternate 1B would require a substantial amount of paved roadway restoration, an additional bore across Monterey Pike,

and would cost approximately \$293,675. Both alternates would require the 6" and 4" water main connections and pressure reducing assemblies (Yellow) to the existing Monterey water mains.

Costs for Alternates 1A and 1B could be reduced by \$20,100 if individual service PRVs (~\$26,400 total) were used instead of one of the pressure reducing assemblies (\$46,500) for meters south of Cedar Creek. We would need KAW to verify all meters on this main since we assumed based on the residences in this area.

Once west of Monterey Pike, Alternate 2A (Pink) continues within Point of Rock Road past the Quarles property. Alignment 2A then turns towards Cedar Creek and would cost approximately \$69,658. Alternate 2B (Purple) turns immediately toward Cedar Creek, onto the Quarles property, and would cost approximately \$45,732. Both alternates include a reducer, 4" gate valve, and plug for a future water main extension down Point of Rock Road (would require a pressure reducing assembly or individual service PRVs) since this project will be added in the future.

We have also determined the additional fees required to continue design and easement acquisition services. A design fee increase of \$14,700 is needed for the revised alignment through Monterey and realignment around the R.C. Junior Ford Trust on KY 22. This increase includes a credit from unused geotechnical fees associated with the US 127 tunnel alignment alternative.

An easement fee increase of \$20,100 is needed for the continued easement acquisition and staking on this project. This increase includes a credit from unused easement development fees. At this point, we do not anticipate the development of any additional easement documents.

We should also discuss the possibility of designing the water main extension down Point of Rock Road and any additional bidding cycles for a KY 607 re-bid. If this line was added to the KY 607 re-bid it could help reduce the unit price cost since it would add more the contractors project

Let me know if you have any questions or need any additional information.

Thanks,

Mark C. Askin, P.E.  
Strand Associates, Inc.  
325 West Main Street, Suite 710  
Louisville, KY 40202  
(502) 583-7020  
[www.strand.com](http://www.strand.com)





RE: KAW - NDC - Monterey Easement - Larry Wallen

Askin, Mark

to:

Lance.Williams@amwater.com, Jason.Hurt@amwater.com, R.Kruchinski@amwater.com

07/09/2012 12:18 PM

Cc:

"Cash, Jamey", "Tinsley, Ryan"

Hide Details

From: "Askin, Mark" <Mark.Askin@strand.com>

To: "Lance.Williams@amwater.com" <Lance.Williams@amwater.com>,

"Jason.Hurt@amwater.com" <Jason.Hurt@amwater.com>, "R.Kruchinski@amwater.com"

<R.Kruchinski@amwater.com>

Cc: "Cash, Jamey" <Jamey.Cash@strand.com>, "Tinsley, Ryan"

<Ryan.Tinsley@strand.com>

History: This message has been forwarded.

All,

Larry Wallen called us back this morning with his counteroffer for the proposed and existing easement, his counteroffer was **\$125,000 firm**. This would include an easement for the existing and proposed waterline and dropping of all of his lawsuits for the previous easement signed by Hall. He also stated that he was working with an attorney in Lexington for a civil and federal lawsuit against KAW, the Hall's, and the neighbors for the previous easement signed.

He stated that he is now also suing his neighbors (Peters and Cummins) since they were part of this situation. He says that since the Legal Description on these easements refer to their neighboring property as Hall, they were dishonest. Looking at the Cummins and Peters signed easement, they signed only 5 and 7 days after Wallen's deed was recorded. We brought this up to Larry and noted that the legal description just seemed to be out of date by a matter of days and did not really affect the ownership of his property, but he persisted.

Larry claims the existing 15' waterline easement prevents him from building a replica of the previous historical house in that location of his property. He now also states that the historical walkway on his property was damaged when the existing waterline was installed. He said he has the KY Historical certification for his property.

FYI

Please advise on how to proceed.

Thanks

Mark C. Askin, P.E.  
Strand Associates, Inc.  
325 West Main Street, Suite 710  
Louisville, KY 40202  
(502) 583-7020  
[www.strand.com](http://www.strand.com)

**From:** Askin, Mark  
**Sent:** Friday, July 06, 2012 11:49 AM  
**To:** 'Lance.Williams@amwater.com'; Jason.Hurt@amwater.com; R.Kruchinski@amwater.com  
**Cc:** Cash, Jamey; Tinsley, Ryan  
**Subject:** KAW - NDC - Monterey Easement - Larry Wallen

Lance, Jason, & Kevin,

We called Larry Wallen to discuss the proposed easement on Monterey Pike and to try to schedule a meeting.

He replied that the existing easement was illegally signed by the previous owners, Harlos & Alice Hall since the easement agreement (DB 176/PG 718) was signed in Dec. 1994 and he bought the property from the Halls in Oct. 1994 (DB 175/PG 230). Jason provided us a copy of the recorded easements and it appears Mr. Wallen is correct, the easement was granted by a property owner who did not own the property - they sold it two months prior.

Mr. Wallen is threatening a lawsuit since the existing water main is on his property illegally per the chain of deeds. KAW may want to have their attorney review these deeds to get an legal opinion (see attached vesting deed and deed of easement). In order to avoid his lawsuit, Mr. Wallen said KAW has to give him a free water tap, free water for his life (there is no house here, so he only uses about 10 gal. of water a year here), and whatever compensation he decides. He also stated that his attorney said he should donate the easement and get the compensation check as damages so he does not have to pay taxes on it.

He offered to meet onsite on August 10, he does not know about meeting any earlier. He'll call me next week to let me know what compensation amount he determines.

Based on the KYTC record drawings it appears there is a 70' right of way on Monterey Pike. Based on this we may want to look at moving the proposed water main into the existing right of way, we will measure, but it appears there should be ample room. KAW may want to locate the existing water main to verify its location to see if it is already in the existing road right of way to try to eliminate this issue.

Please advise if you have any questions or need any additional information. We will probably visit this property prior to our meeting on Wednesday evening. Thanks & have a good weekend.

Mark C. Askin, P.E.  
Strand Associates, Inc.  
325 West Main Street, Suite 710  
Louisville, KY 40202

(502) 583-7020  
[www.strand.com](http://www.strand.com)



KAW - NDC - Monterey Easement - Larry Wallen

Askin, Mark

to:

Lance.Williams@amwater.com, Jason.Hurt@amwater.com, R.Kruchinski@amwater.com

07/06/2012 11:49 AM

Cc:

"Cash, Jamey", "Tinsley, Ryan"

Hide Details

From: "Askin, Mark" <Mark.Askin@strand.com>

To: "Lance.Williams@amwater.com" <Lance.Williams@amwater.com>,

"Jason.Hurt@amwater.com" <Jason.Hurt@amwater.com>, "R.Kruchinski@amwater.com"

<R.Kruchinski@amwater.com>

Cc: "Cash, Jamey" <Jamey.Cash@strand.com>, "Tinsley, Ryan"

<Ryan.Tinsley@strand.com>

History: This message has been forwarded.

## 2 Attachments



Hall Esmnt.pdf DB175-PG230.pdf

Lance, Jason, & Kevin,

We called Larry Wallen to discuss the proposed easement on Monterey Pike and to try to schedule a meeting.

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Please advise if you have any questions or need any additional information. We will probably visit this property prior to our meeting on Wednesday evening. Thanks & have a good weekend.

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(502) 583-7020  
[www.strand.com](http://www.strand.com)

718

DB 176/718  
1994-T243

WATER LINE EASEMENT

Know all men by these presents:

016009

That in consideration of the mutual promises made herein, and the sum of ONE DOLLAR (\$1.00) paid to Harlos Hall and Alice Hall, husband and wife, U.S. Highway 127-South, Owenton, Kentucky 40359, hereinafter referred to as Grantor(s) by the TRI-VILLAGE WATER DISTRICT/<sup>3700 U.S. Hwy 127-N, Owenton, KY 403:</sup> hereinafter referred to as Grantee, the receipt of which is hereby acknowledged the Grantor(s) does (do) hereby grant, bargain, sell, transfer, and convey unto the Grantee, its successors and assigns, a perpetual easement with the right to erect, construct, install, and lay, and thereafter use, operate, inspect, repair, maintain, replace, and remove a pipeline with necessary and convenient appurtenances for the transportation of water ever, across, and through the land of the Grantor(s) situated in Owen County, State of Kentucky, said easement being described in the attached "Legal Description":

In addition in the permanent easement, described in the "Legal Description," there is conveyed herewith a temporary construction easement fifteen (15) feet in width on each side of the above referenced permanent easement, if available, and suitable for use. This temporary construction easement shall terminate six (6) months following the completion of the water line construction.

The consideration hereinabove recited shall constitute payment in full for any damages to the land of the Grantor(s), his, her, or their successors and assigns, by reason of the installation, operation, and maintenance of the structures or improvements referred to herein. The Grantee covenants to maintain the easement in good repair so that no unreasonable damage will result from its use to the adjacent land of the Grantor(s), his, her, or their successors and assigns. Provideded, however, the Grantee shall restore the disturbed surface in as near original condition as may be reasonably practicable.

The grant and other provisions of this easement shall constitute a covenant running with the land for the benefit of the Grantee, its successors and assigns.

I N W I T N E S S W H E R E O F , The Grantor(s) has (have) executed this Water Line Easement on this the 7 day of Dec, 1994.

Harlos Hall  
Harlos Hall

Alice Hall  
Alice Hall

719

STATE OF KENTUCKY )  
COUNTY OF OWEN )

I, Carol J. Cox, a Notary Public in and for the county and state aforesaid, do hereby certify that Harlos Hall and Alice Hall, parties thereto, the Grantor(s) personally appeared before me and executed and acknowledged the foregoing Water Line Easement on this the 7 day of December, 1994.

My Commission expires: July 19, 1997

Carol J. Cox  
NOTARY PUBLIC, STATE AT LARGE

**CERTIFICATE OF CONSIDERATION**

We, Harlos Hall and Alice Hall, of U.S. Highway 127-South, Owenton, Kentucky 40359, Grantors, and Tri-Village Water District, Sparta Road, Owenton, Kentucky 40359, Grantee, do hereby certify pursuant to KRS Chapter 382, that the above stated considerations in the amount of ONE DOLLAR (\$1.00), is the true, correct, and full consideration paid for the property herein conveyed.

Harlos Hall  
Harlos Hall  
Grantor(s)

Alice Hall  
Alice Hall  
Grantor(s)

TRI-VILLAGE WATER DISTRICT

By: Charles F. Noel  
Chairman  
Grantee

**A C K N O W L E D G M E N T**

STATE OF KENTUCKY )  
COUNTY OF OWEN )

I, the undersigned, a Notary Public, in and for the state and county aforesaid do hereby certify that the foregoing Certificate of Consideration was this day produced before me in my said county and state by Harlos Hall and Alice Hall, parties thereto, Grantor(s), and duly signed and duly acknowledged same to be their own free act.

Witness my hand on this 7 day of Dec., 1994.

My Commission expires: July 19, 1997

Carol J. Cox  
NOTARY PUBLIC, STATE AT LARGE

STATE OF KENTUCKY )  
COUNTY OF OWEN )

I, the undersigned, a Notary Public, in and for the state and county aforesaid do hereby certify that the foregoing Certificate of Consideration was this day produced before me in my said county and state by Tri-Village Water District, Grantee, and duly signed and acknowledged same by the Chairman of the Board of Commissioners of the Tri-Village Water District, to be his free act.

Witness my hand on this 13 day of Feb., 1994

My Commission expires: 7-19-1997

Carol J. Cox  
NOTARY PUBLIC, STATE AT LARGE

THIS INSTRUMENT PREPARED BY:

Edward M. Bourne

Edward M. Bourne  
Attorney at Law  
P. O. Box 373  
Owenton, Kentucky 40359  
(502) 484-2365

720

LEGAL DESCRIPTION

Beginning at a northeast corner of Joe Peters, meandering with Highway 127 to a northwest corner of Thomas E. and Janice Cummins. An easement 15 ft. wide across the property of Harlos Hall and Alice Hall.

Being a part of the same property conveyed to Harlos Hall and Alice Hall, husband and wife, from Virginia Dickey, a single person, by deed dated March 17, 1990, of record in Deed Book 161, Page 483, in the Owen County Court Clerk's office.

STATE OF KENTUCKY, County of Owen, SCT.

I, Eugene Young, Clerk of Owen County Court, hereby certify that the foregoing CR was this day lodged in my office for record and is, with this and the foregoing certificate duly recorded in my said office. Witness my hand this 28 day of Feb, 1990 A.D.  
Clerk Fee 1.00 State for 100 Transfer Tax 1.00 Total Amount Collected 2.00 Receipt Number 46582  
Eugene Young, Owen County Clerk  
by MWA Deputy Clerk



3

230  
WARRANTY DEED

15998

This DEED OF CONVEYANCE, made and entered this 6th day of October, 1994, between Harlos Hall and Alice Hall, husband and wife, 127 South, Box 6900, Owenton, Kentucky 40359, parties of the first part, and Larry Dean Wallen, HC 71, Box 620, Prestonsburg, Kentucky 41653, party of the second part Witnesseth: That for and in consideration of the sum of Seven Thousand, Six Hundred Dollars (\$7,600.00) cash in hand paid, receipt of which is hereby acknowledged, being the full consideration given in exchange for this deed, the first parties do hereby sell and convey to the party of the second part his heirs and assigns, the following described property, to-wit:

*Virginia Dickey  
10/6/94*

Two adjoining town lots in the Town of Monterey, Owen County, Kentucky, situated on the south side of the Taft Highway, and bounded as follows:

LOT NO. ONE: Bounded on the north by the Taft Highway (now U.S. Highway 127), on the east by the property of W. H. McClure, now deceased, on the south by Seston Street and on the west by the lands of William Pace.

LOT NO. TWO: On the north by the Taft Highway (now U.S. Highway 127) and running 73 feet; on the east by the property of Clarence Young and running 178 feet; on the south by the property of Herman Johnson, and running 115 feet; and on the west by the lands of Herman Johnson and running 83 feet.

Being the same property conveyed by Virginia Dickey, a single woman, to Harlos Hall and Alice Hall, husband and wife, by deed dated March 17, 1990 and recorded in Deed Book 161, page 483, Owen County Clerk's Office.

TO HAVE AND TO HOLD the same together with all appurtenances thereunto belonging unto Larry Dean Wallen, the party of the second part his heirs and assigns forever. And the said parties of the first part hereby covenant with the party of the second part, that they will warrant the title to the property hereby conveyed unto said party of the second part and his heirs assigns forever by Covenants of General Warranty.

*Tax \$8.00*

231

In testimony whereof, the parties of the first part have hereunto subscribed their names the day and year aforesaid.

Harlos Hall  
HARLOS HALL

Alice Hall  
ALICE HALL

STATE OF KENTUCKY        )  
                                  ) Notary's Certificate of Acknowledgment  
COUNTY OF OWEN         )

I, Charles E. Carter, Notary Public for the County and State aforesaid, certify that the foregoing Deed of Conveyance from Harlos Hall and Alice Hall to Larry Dean Wallen, was on the 6th day of October, 1994 produced to me in said County and acknowledged before me by Harlos Hall and Alice Hall, husband and wife, parties grantor thereto, to be their act and deed.

Given under my hand this 6th day of October, 1994.

Charles E. Carter  
Notary Public - State at Large  
MY COMMISSION EXPIRES: 9-26-98

CERTIFICATE OF CONSIDERATION

The Grantors, Harlos Hall and Alice Hall, and the Grantee, Larry Dean Wallen, state that the sum of Seven Thousand, Six Hundred Dollars (\$7,600.00) is the full consideration paid for the aforesaid property described above.

GRANTORS

Harlos Hall  
HARLOS HALL

Alice Hall  
ALICE HALL

GRANTEE

Larry Dean Wallen  
LARRY DEAN WALLEN

232

STATE OF KENTUCKY )  
COUNTY OF OWEN )

Notary's Certificate of Acknowledgment

I, Charles E. Carter, Notary Public for the State of Kentucky at Large, hereby certify that the foregoing was subscribed and sworn to before me by the Grantors, Harlos Hall and Alice Hall, and the Grantee, Larry Dean Wallen, this 6th day of October, 1994.

Charles E. Carter  
Notary Public - State at Large  
My Commission Expires: 9-26-98

Instrument prepared by Charles E. Carter, Attorney, Owenton, KY.

Charles E. Carter

STATE OF KENTUCKY, County of Owen, SCT.

Eugene Young, Clerk of Owen County Court, hereby certify that the foregoing W.D. was this day filed in my office for record and is, with this and the foregoing certificate duly recorded in my office. I received my hand this 10 day of Oct, 1994.  
Clerk Fee 10 State Fee 5.00 Transfer Tax 2.00 Total Amount Collected 17.00 Receipt Number 45-309  
Eugene Young, Owen County Clerk  
by 781 20 Deputy Clerk



RE: KAW - NDC Easement Acquisition Update

Askin, Mark

to:

R.Kruchinski@amwater.com, Lance.Williams@amwater.com

06/28/2012 10:31 AM

Cc:

"Cash, Jamey", "Jason.Hurt@amwater.com", "Tinsley, Ryan"

Hide Details

From: "Askin, Mark" <Mark.Askin@strand.com>

To: "R.Kruchinski@amwater.com" <R.Kruchinski@amwater.com>,  
"Lance.Williams@amwater.com" <Lance.Williams@amwater.com>

Cc: "Cash, Jamey" <Jamey.Cash@strand.com>, "Jason.Hurt@amwater.com"  
<Jason.Hurt@amwater.com>, "Tinsley, Ryan" <Ryan.Tinsley@strand.com>

Kevin,

Most likely we will wrap up before 11, but we can forward you our mark-ups on the plans afterwards if that works.

Thanks

Mark C. Askin, P.E.  
Strand Associates, Inc.  
325 West Main Street, Suite 710  
Louisville, KY 40202  
(502) 583-7020  
[www.strand.com](http://www.strand.com)

**From:** R.Kruchinski@amwater.com [<mailto:R.Kruchinski@amwater.com>]

**Sent:** Thursday, June 28, 2012 10:27 AM

**To:** Askin, Mark; Lance.Williams@amwater.com

**Cc:** Cash, Jamey; Jason.Hurt@amwater.com; Tinsley, Ryan

**Subject:** Re: KAW - NDC Easement Acquisition Update

I am not available until 11. I'll call Jason on Friday and see where everyone is at.

KK

Kevin Kruchinski  
Kentucky American Water  
859-361-1770

---

**From:** "Askin, Mark" [Mark.Askin@strand.com]  
**Sent:** 06/28/2012 02:03 PM GMT  
**To:** Lance Williams; R Kruchinski  
**Cc:** "Cash, Jamey" <Jamey.Cash@strand.com>; Jason Hurt; "Tinsley, Ryan" <Ryan.Tinsley@strand.com>  
**Subject:** RE: KAW - NDC Easement Acquisition Update

Kevin,

Can you meet this Friday at 9:00 a.m. in Monterey to review a possible realignment in Monterey due to easement issues? Please advise.

Thanks

Mark C. Askin, P.E.  
Strand Associates, Inc.  
325 West Main Street, Suite 710  
Louisville, KY 40202  
(502) 583-7020  
[www.strand.com](http://www.strand.com)

**From:** [Lance.Williams@amwater.com](mailto:Lance.Williams@amwater.com) [mailto:Lance.Williams@amwater.com]  
**Sent:** Thursday, June 28, 2012 10:02 AM  
**To:** Askin, Mark; [R.Kruchinski@amwater.com](mailto:R.Kruchinski@amwater.com)  
**Cc:** Cash, Jamey; [Jason.Hurt@amwater.com](mailto:Jason.Hurt@amwater.com); Tinsley, Ryan  
**Subject:** RE: KAW - NDC Easement Acquisition Update

Mark,

You may want to reach out to Kevin Kruchinski to see if he can also meet on Friday to look at a possible new allegement.

Lance E. Williams, PE  
Director of Engineering  
Kentucky American Water  
2300 Richmond Rd.  
Lexington, KY 40502  
1.859.268.6316 Office  
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[lance.williams@amwater.com](mailto:lance.williams@amwater.com)

From: "Askin, Mark" <Mark.Askin@strand.com>  
To: "Lance.Williams@amwater.com" <Lance.Williams@amwater.com>  
Cc: "Cash, Jamey" <Jamey.Cash@strand.com>, "Jason.Hurt@amwater.com" <Jason.Hurt@amwater.com>, "Tinsley, Ryan" <Ryan.Tinsley@strand.com>

Date: 06/28/2012 08:52 AM  
Subject: RE: KAW - NDC Easement Acquisition Update

---

Jason,

Can you meet on Friday at 9:00 in Monterey to look at a revised route? Let me know.

Thanks

Mark C. Askin, P.E.  
Strand Associates, Inc.  
325 West Main Street, Suite 710  
Louisville, KY 40202  
(502) 583-7020  
[www.strand.com](http://www.strand.com)

**From:** [Lance.Williams@amwater.com](mailto:Lance.Williams@amwater.com) [<mailto:Lance.Williams@amwater.com>]  
**Sent:** Thursday, June 28, 2012 8:50 AM  
**To:** Askin, Mark  
**Cc:** Cash, Jamey; [Jason.Hurt@amwater.com](mailto:Jason.Hurt@amwater.com); Tinsley, Ryan  
**Subject:** RE: KAW - NDC Easement Acquisition Update

We need to look at an alternate route.

Lance E. Williams, PE  
Director of Engineering  
Kentucky American Water  
2300 Richmond Rd.  
Lexington, KY 40502  
1.859.268.6316 Office  
7.533.6316 Internal  
1.859.321.8235 Cell  
[lance.williams@amwater.com](mailto:lance.williams@amwater.com)

From: "Askin, Mark" <[Mark.Askin@strand.com](mailto:Mark.Askin@strand.com)>  
To: "[Lance.Williams@amwater.com](mailto:Lance.Williams@amwater.com)" <[Lance.Williams@amwater.com](mailto:Lance.Williams@amwater.com)>, "[Jason.Hurt@amwater.com](mailto:Jason.Hurt@amwater.com)" <[Jason.Hurt@amwater.com](mailto:Jason.Hurt@amwater.com)>  
Cc: "Cash, Jamey" <[Jamey.Cash@strand.com](mailto:Jamey.Cash@strand.com)>, "Tinsley, Ryan" <[Ryan.Tinsley@strand.com](mailto:Ryan.Tinsley@strand.com)>  
Date: 06/28/2012 08:31 AM  
Subject: RE: KAW - NDC Easement Acquisition Update

---

Lance & Jason,

Here is the counter-offer from the 2 Monterey owners we talked to yesterday. They both rejected the \$5/LF.

A-90-Brumley (126'): His original counteroffer was \$2,500, our \$5/lf offer of \$630 was rejected. His counter offer is \$2,000 (~\$16/lf), no lower.

A-79-Quarles (887'): \$5/lf was \$4,435. He rejected and countered with \$25,000 (~\$28/lf) with conditions of having easement area graded smooth and seeded, and inquired on getting a water meter installed along the existing line so he could access water, at no charge. (2 acre property was bought for \$2,500 in 2004).

If Quarles is a no-go, we'll need to remove a couple easements (such as Brumley above) and add a new one or more. We may want to meet in the field to review a possible realignment to avoid some of the problem property owners, let me know your thoughts.

We will proceed in contacting the other owners.

Thanks

Mark C. Askin, P.E.  
Strand Associates, Inc.  
325 West Main Street, Suite 710  
Louisville, KY 40202  
(502) 583-7020  
[www.strand.com](http://www.strand.com)

**From:** Askin, Mark  
**Sent:** Wednesday, June 27, 2012 12:06 PM  
**To:** [Lance.Williams@amwater.com](mailto:Lance.Williams@amwater.com); [Jason.Hurt@amwater.com](mailto:Jason.Hurt@amwater.com)  
**Cc:** Cash, Jamey; Tinsley, Ryan  
**Subject:** KAW - NDC Easement Acquisition Update

Lance & Jason,

The following is an update of the easement acquisition.

To date, we have acquired 25 of the 41-needed easements. Following is a breakdown of the 16-remaining unsigned easements:

- BPS Site and Entrance – 2 easements (Martha Brock)
- Owenton Tank Site – 1 easement (Blue Moon Investors)
- KY 607 Water Main – 1 easement (Vivian Cook; don't know who can sign, her grandson has signed, she is deceased)
- KY 22 Water Main – 1 easement (RC Ford Jr. Trust, Gerry L. Calvert III; want an entrance off of KY 22 to grant easement)
- Monterey Water Main – 11 easements (6 will likely sign with reasonable compensation)

We are contacting the property owners today to schedule meetings but will need our task order amended for additional funds. As of the end of May, we have billed ~\$51,875 of the \$52,750 budget for easement acquisition and will need additional funding approved prior to meetings. This was an hourly task order.

If you can e-mail me that this will be approved for additional fees we will proceed and process the task order at the same time.

The KAW task order provided \$92,750 for easement services. The task order states that approximately

\$40,000 of this was for easement development, \$23,000 for easement stakeout, and \$29,750 for easement acquisition. To date, we have developed and been paid for a total of 42-easement documents; one of these was later found to be unnecessary. At a rate of \$800 per easement, we have been billed for \$33,600 of the \$40,000 budget. If there is no alignment revision through Monterey, we could utilize the difference for easement acquisition and stakeout.

A couple of the Monterey parcels who won't likely sign with reasonable compensation are located in important areas. If these parcels will not sign, an alignment revision will become necessary and we would prefer KAW to provide some sort of direction on the realignment. Obviously, any realignment will also require an amendment to our design fee and additional easement development and acquisition.

Let me know how you'd like us to proceed and if you have any other questions & will authorize additional funds..

Mark C. Askin, P.E.  
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Louisville, KY 40202  
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KAW NDC - Monterey Realignment Alternatives & Additional Fees

Askin, Mark

to:

Lance.Williams@amwater.com, Jason.Hurt@amwater.com

07/05/2012 08:12 AM

Cc:

"Tinsley, Ryan"

Hide Details

From: "Askin, Mark" <Mark.Askin@strand.com>

To: "Lance.Williams@amwater.com" <Lance.Williams@amwater.com>,  
"Jason.Hurt@amwater.com" <Jason.Hurt@amwater.com>

Cc: "Tinsley, Ryan" <Ryan.Tinsley@strand.com>

## 2 Attachments



KAW NDC - Monterey Realignment Alternatives.pdf KAW NDC - Monterey Relignment Alternatives.xlsx

Lance & Jason,

I hope you had a good 4<sup>th</sup>. We have developed alternate alignments and cost estimates for the water transmission main through south Monterey. These revisions were required because the Joan C. Threet Trust (A-69) will not sign an easement and Jeffrey C. Quarles (A-79) wants \$25,000 to compensate for the easement. Unit prices used on our cost estimate were from Garney's bid that included owner provided materials.

In preparing the alternatives we looked at a one different alignment than we reviewed in the field. Based on KYTC right of way maps it appears there is an existing 70 foot right of way along Monterey Pike. On the attached mapping, Alternate 1A (Green) follows Monterey Pike within its right-of-way and would cost approximately \$208,620. Alternate 1B (Red) follows Monterey Pike, but then turns onto Old Bridge Street. Alternate 1B would require a substantial amount of paved roadway restoration, an additional bore across Monterey Pike, and would cost approximately \$293,675. Both alternates would require the 6" and 4" water main connections and pressure reducing assemblies (Yellow) to the existing Monterey water mains.

Costs for Alternates 1A and 1B could be reduced by \$20,100 if individual service PRVs (~\$26,400 total) were used instead of one of the pressure reducing assemblies (\$46,500) for meters south of Cedar Creek. We would need KAW to verify all meters on this main since we assumed based on the residences in this area.

Once west of Monterey Pike, Alternate 2A (Pink) continues within Point of Rock Road past the Quarles property. Alignment 2A then turns towards Cedar Creek and would cost approximately \$69,658. Alternate 2B (Purple) turns immediately toward Cedar Creek, onto the Quarles property, and would cost approximately \$45,732. Both alternates include a reducer, 4" gate valve, and plug for a future water main extension down Point of Rock Road (would require a pressure reducing assembly or individual service PRVs) since this project will be added in the future.

We have also determined the additional fees required to continue design and easement acquisition services. A design fee increase of \$14,700 is needed for the revised alignment through Monterey and realignment around the R.C. Junior Ford Trust on KY 22. This increase includes a credit from unused geotechnical fees associated with the US 127 tunnel alignment alternative.

An easement fee increase of \$20,100 is needed for the continued easement acquisition and staking on this project. This increase includes a credit from unused easement development fees. At this point, we do not anticipate the development of any additional easement documents.

We should also discuss the possibility of designing the water main extension down Point of Rock Road and any additional bidding cycles for a KY 607 re-bid. If this line was added to the KY 607 re-bid it could help reduce the unit price cost since it would add more the contractors project

Let me know if you have any questions or need any additional information.

Thanks,

Mark C. Askin, P.E.  
Strand Associates, Inc.  
325 West Main Street, Suite 710  
Louisville, KY 40202  
(502) 583-7020  
[www.strand.com](http://www.strand.com)

Email dated 07/05/2012 08:12 am

From Mark Askin (Strand Associates) to Lance Williams (KAW) and Jason Hurt (KAW)

See attached KAW NDC – Monterey Realignment Alternative. pdf

CONTRACT 1-2012		PAY ESTIMATE NO.			
NORTHERN DISTRICT CONNECTION, PHASE 1		OWNER			
US 127 TRANSMISSION MAIN & KY 607 WATER MAIN EXT.		Kentucky American Water			
		2300 Richmond Road			
		Lexington, KY			
		BID / CHANGE ORDER			
NO.	ITEM	QTY	UNIT	UNIT COST	TOTAL
<b>Alternate 1A - Monterey Pike (Includes Some Owner-Provided Materials)</b>					
1	16" DI Pipe, trenching, laying and backfilling. INCL all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, and HYDRANTS.	1,600	LF	\$46.45	\$74,320.00
2	6" DI Pipe, trenching, laying and backfilling. INCL all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, and HYDRANTS.	250	LF	\$40.00	\$10,000.00
3	4" DI Pipe, trenching, laying and backfilling. INCL all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, and HYDRANTS.	50	LF	\$40.00	\$2,000.00
4	16 IN Min. steel cover pipe, furnishing and installing, trenching under state maintained roads, INCL unclassified boring and/or jacking (water pipe not included).	40	LF	\$325.00	\$13,000.00
5	16 IN C.I. AWWA N.R.S. gate valve and box, CIP, includes trenching, laying and backfilling. INCL all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, and HYDRANTS.	1	EA	\$900.00	\$900.00
6	Fire hydrant for 16" DIP water mains, INCL trenching, laying and backfilling. INCL all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation), CIP, as per detail. OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, and HYDRANTS.	1	EA	\$1,400.00	\$1,400.00
7	6" blowoff hydrant for all sizes of water mains, INCL trenching, laying and backfilling. INCL all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation), CIP, as per detail for the Cedar Creek crossing on the existing 6" PVC water. Also includes abandoning the existing 4-inch and 6-inch water mains under Cedar Creek. OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, and HYDRANTS.	1	EA	\$1,400.00	\$1,400.00
8	Cleanup and restoration, INCL. furnishing, material, daily mulch, labor, etc. per Stormwater Pollution Prevention Plan and plans.	1,900	LF	\$2.00	\$3,800.00
9	Paved Roadway Restoration for concrete or bituminous county roads and driveways, no cover pipe. INCL furnishing, trenching, laying and backfilling (unclassified excavation) as per detail.	40	LF	\$40.00	\$1,600.00
10	Tie-in to existing 6" water mains. INCL tapping sleeves, tapping gate valves, MJ sleeves, bends, reducers, plugs, etc. furnishing and installation, INCL unclassified excavation.	1	EA	\$3,600.00	\$3,600.00
11	Tie-in to existing 4" water mains. INCL tapping sleeves, tapping gate valves, MJ sleeves, bends, reducers, plugs, etc. furnishing and installation, INCL unclassified excavation.	3	EA	\$1,000.00	\$3,000.00
12	PRV Valve Vault with Bypass. INCL PRV valve, gate valves, DI pipe including bypass, tees, reducers, bends, concrete vault, lid, backing, electrical transducers, SCADA, and electric/SCADA pole, CIP, includes furnishing, trenching, laying and backfilling (unclassified excavation), as per detail.	2	EA	\$46,500.00	\$93,000.00
13	Silt Fence. INCL all associated items, stakes, fence, CIP, includes furnishing, trenching, installing and backfilling, as per detail.	300	LF	\$2.00	\$600.00
<b>TOTAL - US 127</b>					<b>\$208,620.00</b>

CONTRACT 1-2012		PAY ESTIMATE NO.			
NORTHERN DISTRICT CONNECTION, PHASE 1		OWNER:			
US 127 TRANSMISSION MAIN & KY 607 WATER MAIN EXT.		Kentucky American Water			
		2300 Richmond Road			
		Lexington, KY			
		BID / CHANGE ORDER			
NO.	ITEM	QTY	UNIT	UNIT COST	TOTAL
<b>Alternate 1A - Old Bridge Street (Includes Some Owner-Provided Materials)</b>					
1	16" DI Pipe, trenching, laying and backfilling. INCL all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, and HYDRANTS.	1,500	LF	\$46.45	\$69,675.00
2	6" DI Pipe, trenching, laying and backfilling. INCL all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, and HYDRANTS.	200	LF	\$40.00	\$8,000.00
3	4" DI Pipe, trenching, laying and backfilling. INCL all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, and HYDRANTS.	50	LF	\$40.00	\$2,000.00
4	24 IN Min. steel cover pipe, furnishing and installing, trenching under state maintained roads, INCL unclassified boring and/or jacking (water pipe not included).	140	LF	\$490.00	\$68,600.00
5	16 IN C.I. AWWA N.R.S. gate valve and box, CIP, includes trenching, laying and backfilling. INCL all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, and HYDRANTS.	1	EA	\$900.00	\$900.00
6	Fire hydrant for 16" DIP water mains, INCL trenching, laying and backfilling. INCL all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation), CIP, as per detail. OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, and HYDRANTS.	1	EA	\$1,400.00	\$1,400.00
7	6" blowoff hydrant for all sizes of water mains, INCL trenching, laying and backfilling. INCL all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation), CIP, as per detail for the Cedar Creek Creek crossing on the existing 6" PVC water. Also includes abandoning the existing 4-inch and 6-inch water mains under Cedar Creek. OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, and HYDRANTS.	1	EA	\$1,400.00	\$1,400.00
8	Cleanup and restoration, INCL furnishing, material, daily match, labor, etc. per Stormwater Pollution Prevention Plan and plans.	1,750	LF	\$2.00	\$3,500.00
9	Paved Roadway Restoration for concrete or bituminous county roads and driveways, no cover pipe. INCL furnishing, trenching, laying and backfilling (unclassified excavation) as per detail.	950	LF	\$40.00	\$38,000.00
10	Tie-in to existing 6" water mains. INCL tapping sleeves, tapping gate valves, MJ sleeves, bends, reducers, plugs, etc. furnishing and installation, INCL unclassified excavation.	1	EA	\$3,600.00	\$3,600.00
11	Tie-in to existing 4" water mains. INCL tapping sleeves, tapping gate valves, MJ sleeves, bends, reducers, plugs, etc. furnishing and installation, INCL unclassified excavation.	3	EA	\$1,000.00	\$3,000.00
12	PRV Valve Vault with Bypass. INCL PRV valve, gate valves, DI pipe including bypass, tees, reducers, bends, concrete vault, lid, backing, electrical transducers, SCADA, and electric/SCADA pole, CIP, includes furnishing, trenching, laying and backfilling (unclassified excavation), as per detail.	2	EA	\$46,500.00	\$93,000.00
13	Silt Fence, INCL all associated items, stakes, fence, CIP, includes furnishing, trenching, installing and backfilling, as per detail.	300	LF	\$2.00	\$600.00
<b>TOTAL - US 127</b>					<b>\$293,675.00</b>

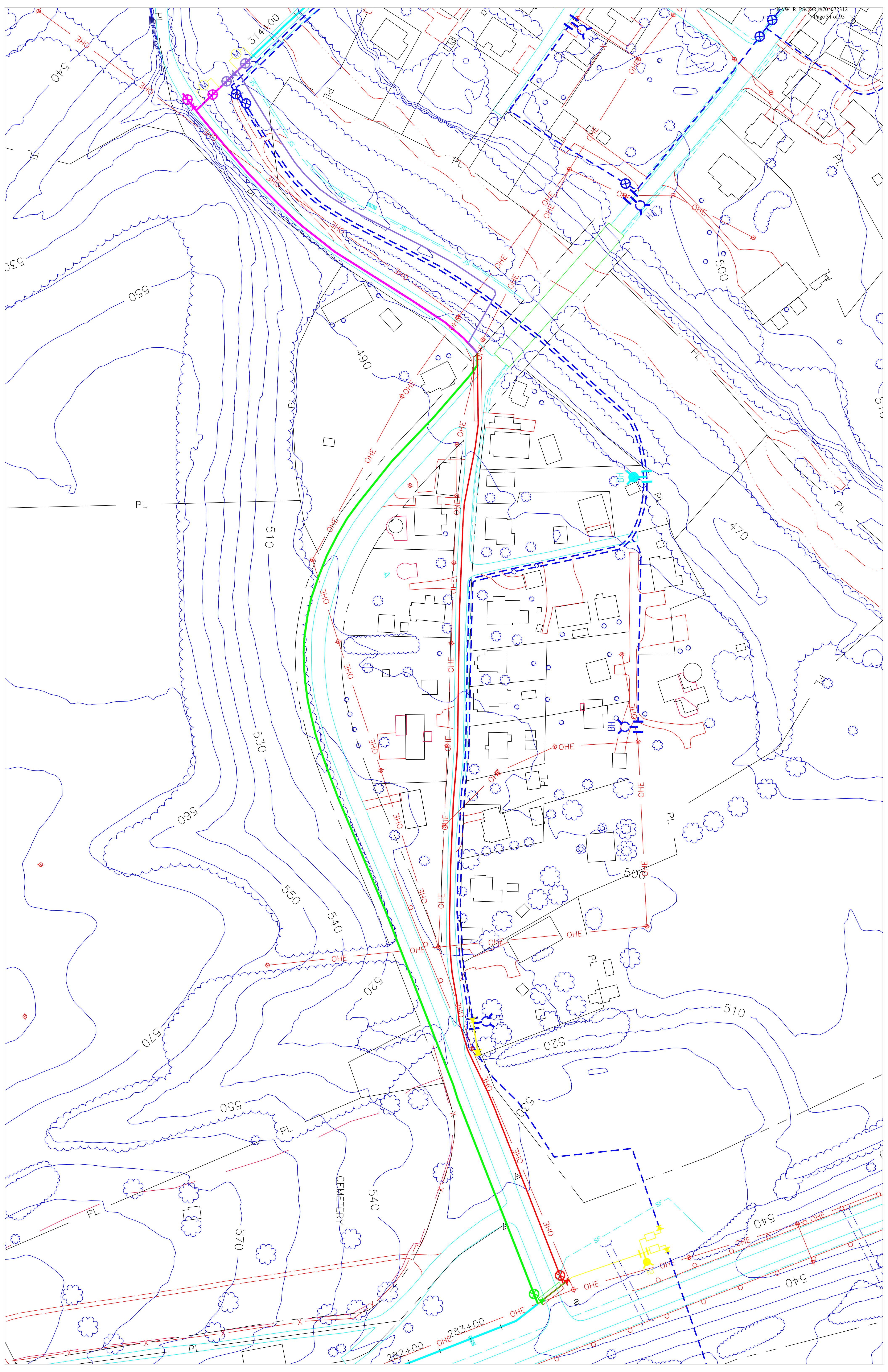
Kentucky American Water – Owen County, KYUS 127 TRANSMISSION MAIN KY 607 WATER MAIN EXT.-  
Contract 1-2012PROJECT COST OPINION BREAKDOWNBASE BID

CONTRACT 1-2012 NORTHERN DISTRICT CONNECTION, PHASE 1 US 127 TRANSMISSION MAIN & KY 607 WATER MAIN EXT.		PAY ESTIMATE NO. OWNER: Kentucky American Water 2300 Richmond Road Lexington, KY			
		BID / CHANGE ORDER			
NO.	ITEM	QTY	UNIT	UNIT COST	TOTAL
<b>Alternate 2A - Point of Rock Road (Includes Some Owner-Provided Materials)</b>					
1	16" DI Pipe, trenching, laying and backfilling. INCL all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, and HYDRANTS.	685	LF	\$46.45	\$31,818.25
2	4" DI Pipe, trenching, laying and backfilling. INCL all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, and HYDRANTS.	35	LF	\$40.00	\$1,400.00
3	4 IN C.I. AWWA N.R.S. gate valve and box, CIP, includes trenching, laying and backfilling. INCL all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, and HYDRANTS.	1	EA	\$600.00	\$600.00
4	Cleanup and restoration, INCL furnishing, material, daily mulch, labor, etc. per Stormwater Pollution Prevention Plan and plans.	720	LF	\$2.00	\$1,440.00
5	Paved Roadway Restoration for concrete or bituminous county roads and driveways, no cover pipe. INCL furnishing, trenching, laying and backfilling (unclassified excavation) as per detail.	620	LF	\$40.00	\$24,800.00
6	Silt Fence. INCL all associated items, stakes, fence, CIP, includes furnishing, trenching, installing and backfilling, as per detail.	600	LF	\$2.00	\$1,200.00
7	Special creek crossing meter box, INCL gate valve, meter, meter box, etc., furnishing and installing, as per detail.	1	EA	\$8,400.00	\$8,400.00
<b>TOTAL - US 127</b>					<b>\$69,658.25</b>

Kentucky American Water – Owen County, KYUS 127 TRANSMISSION MAIN KY 607 WATER MAIN EXT.-  
Contract 1-2012PROJECT COST OPINION BREAKDOWNBASE BID

CONTRACT 1-2012 NORTHERN DISTRICT CONNECTION, PHASE 1 US 127 TRANSMISSION MAIN & KY 607 WATER MAIN EXT.		PAY ESTIMATE NO. OWNER: Kentucky American Water 2300 Richmond Road Lexington, KY			
		BID / CHANGE ORDER			
NO.	ITEM	QTY	UNIT	UNIT COST	TOTAL
<b>Alternate 2B - Quarles Easement (Includes Some Owner-Provided Materials)</b>					
1	16" DI Pipe, trenching, laying and backfilling. INCL all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, and HYDRANTS.	670	LF	\$46.45	\$31,121.50
2	4" DI Pipe, trenching, laying and backfilling. INCL all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, and HYDRANTS.	35	LF	\$40.00	\$1,400.00
3	4 IN C.I. AWWA N.R.S. gate valve and box, CIP, includes trenching, laying and backfilling. INCL all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, and HYDRANTS.	1	EA	\$600.00	\$600.00
4	Cleanup and restoration, INCL furnishing, material, daily mulch, labor, etc. per Stormwater Pollution Prevention Plan and plans.	705	LF	\$2.00	\$1,410.00
5	Paved Roadway Restoration for concrete or bituminous county roads and driveways, no cover pipe. INCL furnishing, trenching, laying and backfilling (unclassified excavation) as per detail.	40	LF	\$40.00	\$1,600.00
6	Silt Fence. INCL all associated items, stakes, fence, CIP, includes furnishing, trenching, installing and backfilling, as per detail.	600	LF	\$2.00	\$1,200.00
7	Special creek crossing meter box, INCL gate valve, meter, meter box, etc., furnishing and installing, as per detail.	1	EA	\$8,400.00	\$8,400.00
<b>TOTAL - US 127</b>					<b>\$45,731.50</b>







BIDDER:                     **GARNEY COMPANIES, INC.**                    

# BID FORMS

NORTHERN DIVISION CONNECTION  
U.S. 127 WATER TRANSMISSION MAIN AND  
KY 607 WATER MAIN EXTENSION, PHASE 1  
AND  
U.S. 127 AND KY 22 WATER TRANSMISSION MAIN, PHASE 2

PROJECT NO. IP-1232-3

KENTUCKY AMERICAN WATER

BID FORM	
Date: _____	Time: _____
Signature: _____	
Senior Management	
Witness: _____	
<i>For Water Company Use Only</i>	

## BID FORM

**NORTHERN DIVISION CONNECTION  
U.S. 127 WATER TRANSMISSION MAIN AND  
KY 607 WATER MAIN EXTENSION, PHASE 1  
AND  
U.S. 127 AND KY 22 WATER TRANSMISSION MAIN, PHASE 2  
Project No. IP-1232-3**

### ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

Kentucky American Water  
Jason Hurt, P.E., Senior Project Engineer  
2300 Richmond Road  
Lexington, KY 40502

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted and the Contract awarded to Bidder, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

### ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for **365** days after the Bid opening. The Contractor in its Bid shall include monthly increase in Bid amount if the Bid is not awarded within 120 days. Bidder will sign and submit the Agreement with the Bonds (if any) and other documents required by the Bidding Requirements within fifteen (15) days after the date of Owner's Notice of Award.



- I. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

#### **ARTICLE 4 – BIDDER’S CERTIFICATION**

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding;
- D. Bidder has not engaged in corrupt, fraudulent, collusive or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
  - 1. “Corrupt practice” means the offering, giving, receiving or soliciting of any thing of value likely to influence the action of a public official [or American Water Systems official] in the bidding process.
  - 2. “Fraudulent practice” means a misrepresentation of facts made: (a) to influence the bidding or negotiating process to the detriment of Owner; (b) to establish bid prices at artificial non-competitive levels; or (c) to deprive Owner of the benefits of free and open competition.
  - 3. “Collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
  - 4. “Coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

#### **ARTICLE 5 – BASIS OF BID**

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

If specific materials are to be furnished by the Owner, the prices provided herein include installation of such materials only. Otherwise the prices include furnishing and installation of materials.

## PRICE SCHEDULE

The following prices shall be used to determine the amount of payment to the Contractor for actual work completed. Phase 1 and Phase 2 are separate projects and will be awarded separately. The items of Work and the method of measurement to determine quantities shall be as described in Specification Section 01075-Basis of Payment. Quantities are not guaranteed. Final payment will be based on actual quantities.

Contract award will be made based on the computed total base bid plus any portions of the alternative bid selected and portions of the base bid eliminated. OWNER reserves the right to accept or reject any alternatives to the computed total base bid prior to Notice of Award.

If a Contract is to be awarded, it will be awarded to the responsive and responsible Bidder with either the lowest computed total base bid or the lowest computed total with portions of the alternative bid selected and portions of the base bid eliminated by OWNER whose evaluation indicates to OWNER that the award will be in the best interest of the Project. Bid from the successful Bidder for the computed base bid or alternative bid selected by OWNER may not necessarily be lower in prices than other computed total base bids or alternative bids.

The following prices per item shall be for furnishing and installing the various items of material and work as specified and shown on the drawings. Bidder agrees to perform the Work as shown on the Drawings and described in the Specifications for the following listed prices. Bidder acknowledges that Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions. Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

NOTE: A price must be bid for each item in the Bid, even though the estimated quantity is zero. Unbalanced or unreasonable unit prices may cause rejection of the Bid. All words and numbers shall be in ink.

See Section 01075-Basis of Payment for discussion of cash allowances to include in the Bid.

**U.S. 127 WATER TRANSMISSION MAIN AND  
KY 607 WATER MAIN EXTENSION, PHASE 1**

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>U.S. 127 Water Transmission Main</b>					
1.	16 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	39,620	LF	\$ <u>89.00</u>	\$ <u>3,526,180.00</u>
2.	12 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	155	LF	\$ <u>85.00</u>	\$ <u>13,175.00</u>
3.	6 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	530	LF	\$ <u>56.00</u>	\$ <u>29,680.00</u>
4.	6 IN PVC, AWWA C900 DR 18, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). Bypass of the Monterey Tank.	115	LF	\$ <u>47.00</u>	\$ <u>5,405.00</u>
5.	24 IN minimum steel cover pipe, furnishing and installing, trenching under state maintained roads, including unclassified boring and/or jacking (water pipe not included).	560	LF	\$ <u>490.00</u>	\$ <u>274,400.00</u>
6.	16 IN C.I. AWWA N.R.S. gate valve and box, CIP, includes furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	13	EA	\$ <u>6,550.00</u>	\$ <u>85,150.00</u>
7.	Combination air release vacuum valve including all associated tees, concrete vault, lid, backing, reducers, and bends (unclassified excavation), CIP according to detail.	4	EA	\$ <u>13,000.00</u>	\$ <u>52,000.00</u>
8.	Fire hydrant for 16 IN DI pipe water mains, including furnishing, trenching, laying, and backfilling, all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation), CIP, according to detail.	7	EA	\$ <u>5,000.00</u>	\$ <u>35,000.00</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>U.S. 127 Water Transmission Main</b>					
9.	6 IN blowoff hydrant for all sizes of water mains, including furnishing, trenching, laying, and backfilling, all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation). CIP, according to detail, for the Cedar Creek crossing on the existing 6 IN PVC water main. Also includes abandoning the existing 4 IN and 6 IN water mains under Cedar Creek.	1	EA	\$ <u>5,000.00</u>	\$ <u>5,000.00</u>
10.	Cleanup and restoration including furnishing, material, daily mulch, and labor according to the Stormwater Pollution Prevention Plan and Drawings.	40,420	LF	\$ <u>2.00</u>	\$ <u>80,840.00</u>
11.	Paved roadway restoration for concrete or bituminous county roads and driveways; no cover pipe including furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	815	LF	\$ <u>40.00</u>	\$ <u>32,600.00</u>
12.	Gravel roadway restoration for roadway and driveway crossings; no cover pipe; including furnishing, trenching, laying, and backfilling (unclassified excavation).	430	LF	\$ <u>20.00</u>	\$ <u>8,600.00</u>
13.	Tie-in to existing 12 IN water mains including MJ sleeves, furnishing, installation, and unclassified excavation.	1	EA	\$ <u>1,200.00</u>	\$ <u>1,200.00</u>
14.	Tie-in to existing 8 IN water mains including bends, plugs, furnishing and installation, unclassified excavation, and bypass of the Monterey Tank.	1	EA	\$ <u>1,500.00</u>	\$ <u>1,500.00</u>
15.	Tie-in to existing 6 IN water mains including tapping sleeves, tapping gate valves, MJ sleeves, bends, plugs, furnishing and installation, unclassified excavation, and bypass of the Monterey Tank.	3	EA	\$ <u>3,600.00</u>	\$ <u>10,800.00</u>
16.	Tie-in to existing 4 IN water mains including reducers, plugs, furnishing, installation, and unclassified excavation.	1	EA	\$ <u>1,000.00</u>	\$ <u>1,000.00</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>U.S. 127 Water Transmission Main</b>					
17.	Magnetic flow meter vault with bypass including magnetic flow meter, gate valves, DI pipe including bypass, tees, reducers, bends, concrete vault, lid, backing, electrical transducers, SCADA, and electric/SCADA pole. CIP includes furnishing, trenching, laying, and backfilling (unclassified excavation), according to detail.	1	EA	\$ <u>77,000.00</u>	\$ <u>77,000.00</u>
18.	Check Valve Vault with Bypass including check valve, gate valves, DI pipe including bypass, tees, reducers, bends, concrete vault, lid, and backing, CIP, includes furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	1	EA	\$ <u>35,000.00</u>	\$ <u>35,000.00</u>
19.	PRV valve vault with bypass including PRV valve, gate valves, DI pipe including bypass, tees, reducers, bends, concrete vault, lid, backing, electrical transducers, SCADA, and electric/SCADA pole. CIP includes furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	4	EA	\$ <u>46,500.00</u>	\$ <u>186,000.00</u>
20.	Silt fence including all associated items, stakes, and fence. CIP includes furnishing, trenching, installing, and backfilling according to detail.	31,600	LF	\$ <u>2.00</u>	\$ <u>63,200.00</u>
21.	Straw bales including all associated items, bales, and stakes. CIP includes furnishing, trenching, installing, and backfilling according to detail.	100	EA	\$ <u>5.00</u>	\$ <u>500.00</u>
22.	Stream crossing with 24 IN minimum steel casing pipe and concrete cap including furnishing and installing, and trenching under creek (water pipe not included).	110	LF	\$ <u>150.00</u>	\$ <u>16,500.00</u>
23.	Stream crossing with crushed stone including furnishing and installing (water pipe not included).	45	LF	\$ <u>75.00</u>	\$ <u>3,375.00</u>
24.	Special creek crossing meter box, including gate valve, meter, meter box, furnishing and installing, according to detail.	1	EA	\$ <u>8,400.00</u>	\$ <u>8,400.00</u>
25.	Bid hold monthly increase amount after 120 days, up to 365 days.	1	MO	\$ <u>26,900.00</u>	\$ <u>26,900.00</u>



Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>U.S. 127 Water Transmission Main</b>					
26.	Allowance for geotechnical and concrete material testing services according to Section 01075.	1	LS	\$5,000	\$5,000
27.	Allowance for permits according to Section 01075.	1	LS	\$5,000	\$5,000
28.	Allowance for security according to Section 01075.	1	LS	\$7,500	\$7,500

## COMPUTED TOTAL BASE BID

U.S. 127 WATER TRANSMISSION MAIN, PHASE 1 (ITEMS 1 THROUGH 28):

Four Million Five Hundred Ninety-Six Thousand	Dollars \$	4,596,905.00
Nine hundred Five Dollars and Zero Cents	(Words)	(Numbers)

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>KY 607 Water Transmission Main</b>					
1.	6 IN PVC, AWWA C900 DR 14, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	10,700	LF	\$ <u>36.00</u>	\$ <u>385,200.00</u>
2.	6 IN PVC, AWWA C900 DR 18, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	8,475	LF	\$ <u>33.00</u>	\$ <u>279,675.00</u>
3.	10 IN minimum steel cover pipe, furnishing, installing, trenching under state maintained roads, including unclassified boring and jacking (water pipe not included).	285	LF	\$ <u>300.00</u>	\$ <u>85,500.00</u>
4.	6 IN C.I. AWWA N.R.S. gate valve and box. CIP includes furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	8	EA	\$ <u>1,100.00</u>	\$ <u>8,800.00</u>
5.	6 IN blowoff hydrant for all sizes of water mains, including furnishing, trenching, laying, and backfilling, all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation). CIP, according to detail.	16	EA	\$ <u>5,000.00</u>	\$ <u>80,000.00</u>
6.	Customer services same side of road as main with tandem meter setter and individual pressure reducing valve, CIP, according to detail.	8	EA	\$ <u>1,200.00</u>	\$ <u>9,600.00</u>
7.	Customer services opposite side of road as main with tandem meter setter and individual pressure reducing valve, CIP, according to detail.	4	EA	\$ <u>1,900.00</u>	\$ <u>7,600.00</u>
8.	Additional 3/4 IN service pipe, furnishing, trenching, laying, and backfilling where required in addition to Items 5 and 6.	100	LF	\$ <u>16.00</u>	\$ <u>1,600.00</u>
9.	Cleanup and restoration including furnishing, material, daily mulch, and labor according to the Stormwater Pollution Prevention Plan and drawings.	19,175	LF	\$ <u>2.00</u>	\$ <u>38,350.00</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>KY 607 Water Transmission Main</b>					
10.	Paved roadway restoration for concrete or bituminous county roads and driveways; no cover pipe, including furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	40	LF	\$ <u>35.00</u>	\$ <u>1,400.00</u>
11.	Gravel roadway restoration for roadway and driveway crossings; no cover pipe, including furnishing, trenching, laying, and backfilling (unclassified excavation).	230	LF	\$ <u>16.00</u>	\$ <u>3,680.00</u>
12.	Tie-in to existing 6 IN water mains including tapping sleeves, tapping gate valves, furnishing, and installation including unclassified excavation.	2	EA	\$ <u>3,400.00</u>	\$ <u>6,800.00</u>
13.	Silt fence including all associated items, stakes, and fence. CIP includes furnishing, trenching, installing, and backfilling according to detail.	19,140	LF	\$ <u>2.00</u>	\$ <u>38,280.00</u>
14.	Straw bales including all associated items, bales, and stakes. CIP includes furnishing, trenching, installing, and backfilling according to detail.	55	EA	\$ <u>5.00</u>	\$ <u>275.00</u>
15.	Stream crossing with 10 IN minimum steel casing pipe and concrete cap, including furnishing and installing, trenching under creek (water pipe not included).	75	LF	\$ <u>100.00</u>	\$ <u>7,500.00</u>
16.	Stream crossing with crushed stone including furnishing and installing (water pipe not included).	15	LF	\$ <u>35.00</u>	\$ <u>525.00</u>
17.	Special creek crossing meter box, including gate valve, meter, and meter box, furnishing and installing according to detail.	2	EA	\$ <u>3,100.00</u>	\$ <u>6,200.00</u>
18.	Bid hold monthly increase amount after 120 days, up to 365 days.	1	MO	\$ <u>6,900.00</u>	\$ <u>6,900.00</u>

## COMPUTED TOTAL BASE BID

KY 607 WATER TRANSMISSION MAIN, PHASE 1 (ITEMS 1 THROUGH 18):

*Nine hundred sixty-seven thousand Eight hundred Dollars* \$ 967,885.00  
*Eighty-five dollars and zero Cents* (Words) (Numbers)

ALTERNATIVE BID NO. 1  
U.S. 127 TUNNEL

With this alternative, portions of the Base Bid items are changed to reflect Alternative No. 1 alignment.

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>U.S. 127 TUNNEL (ALTERNATIVE BID NO. 1)</b>					
1.	16 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	33,135	LF	\$ <u>89.00</u>	\$ <u>2,949,015.00</u>
2.	16 IN restrained joint DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	875	LF	\$ <u>110.00</u>	\$ <u>96,250.00</u>
3.	12 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	155	LF	\$ <u>85.00</u>	\$ <u>13,175.00</u>
4.	6 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	530	LF	\$ <u>56.00</u>	\$ <u>29,680.00</u>
5.	6 IN PVC, AWWA C900 DR 18, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). Bypass of the Monterey Tank.	115	LF	\$ <u>47.00</u>	\$ <u>5,405.00</u>
6.	36 IN minimum steel cover pipe, furnishing and installing, including unclassified boring, tunneling, and/or jacking (water pipe not included).	670	LF	\$ <u>1,520.00</u>	\$ <u>1,018,400.00</u>
7.	24 IN minimum steel cover pipe, furnishing and installing, trenching under state maintained roads, including unclassified boring and/or jacking (water pipe not included).	550	LF	\$ <u>490.00</u>	\$ <u>269,500.00</u>
8.	16 IN C.I. AWWA N.R.S. gate valve and box. CIP includes furnishing, trenching, laying, backfilling, all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	13	EA	\$ <u>6,550.00</u>	\$ <u>85,150.00</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>U.S. 127 TUNNEL (ALTERNATIVE BID NO. 1)</b>					
9.	Combination air release vacuum valve including all associated tees, concrete vault, lid, backing, reducers, and bends (unclassified excavation). CIP according to detail.	5	EA	\$ <u>13,000.00</u>	\$ <u>65,000.00</u>
10.	Fire hydrant for 16 IN DI pipe water mains, including furnishing, trenching, laying, and backfilling all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation). CIP according to detail.	7	EA	\$ <u>5,000.00</u>	\$ <u>35,000.00</u>
11.	6 IN blowoff hydrant for all sizes of water mains, including furnishing, trenching, laying, and backfilling, all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation). CIP, according to detail, for the Cedar Creek crossing on the existing 6 IN PVC water main. Also includes abandoning the existing 4 IN and 6 IN water mains under Cedar Creek.	1	EA	\$ <u>5,000.00</u>	\$ <u>5,000.00</u>
12.	Cleanup and restoration, including furnishing, material, daily mulch, and labor according to the Stormwater Pollution Prevention Plan and Drawings.	34,140	LF	\$ <u>2.00</u>	\$ <u>68,280.00</u>
13.	Paved roadway restoration for concrete or bituminous county roads and driveways; no cover pipe, including furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	315	LF	\$ <u>40.00</u>	\$ <u>12,600.00</u>
14.	Gravel roadway restoration for roadway and driveway crossings; no cover pipe, including furnishing, trenching, laying, and backfilling (unclassified excavation).	405	LF	\$ <u>20.00</u>	\$ <u>8,100.00</u>
15.	Tie-in to existing 12 IN water mains including MJ sleeves, furnishing and installation, including unclassified excavation.	1	EA	\$ <u>1,200.00</u>	\$ <u>1,200.00</u>
16.	Tie-in to existing 8 IN water mains including bends, plugs, furnishing, installation, unclassified excavation, and bypass of the Monterey Tank.	1	EA	\$ <u>1,500.00</u>	\$ <u>1,500.00</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>U.S. 127 TUNNEL (ALTERNATIVE BID NO. 1)</b>					
17.	Tie-in to existing 6 IN water mains including tapping sleeves, tapping gate valves, MJ sleeves, bends, plugs, furnishing and installation, including unclassified excavation, and bypass of the Monterey Tank.	3	EA	\$ <u>3,600.00</u>	\$ <u>10,800.00</u>
18.	Tie-in to existing 4 IN water mains including reducers, plugs, furnishing and installation, including unclassified excavation.	1	EA	\$ <u>1,000.00</u>	\$ <u>1,000.00</u>
19.	Magnetic flow meter vault with bypass including magnetic flow meter, gate valves, DI pipe including bypass, tees, reducers, bends, concrete vault, lid, backing, electrical transducers, SCADA, and electric/SCADA pole. CIP includes furnishing, trenching, laying, and backfilling (unclassified excavation), according to detail.	1	EA	\$ <u>77,000.00</u>	\$ <u>77,000.00</u>
20.	Check valve vault with bypass including check valve, gate valves, DI pipe, including bypass, tees, reducers, bends, concrete vault, lid, and backing. CIP includes furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	1	EA	\$ <u>35,000.00</u>	\$ <u>35,000.00</u>
21.	PRV valve vault with bypass including PRV valve, gate valves, DI pipe, bypass, tees, reducers, bends, concrete vault, lid, backing, electrical transducers, SCADA, and electric/SCADA pole. CIP includes furnishing, trenching, laying, and backfilling (unclassified excavation), according to detail.	4	EA	\$ <u>46,500.00</u>	\$ <u>186,000.00</u>
22.	Silt fence including all associated items, stakes, and fence. CIP includes furnishing, trenching, installing, and backfilling according to detail.	25,980	LF	\$ <u>2.00</u>	\$ <u>51,960.00</u>
23.	Straw bales including all associated items, bales, and stakes. CIP includes furnishing, trenching, installing, and backfilling according to detail.	90	EA	\$ <u>5.00</u>	\$ <u>450.00</u>
24.	Stream crossing with 24 IN minimum steel casing pipe and concrete cap, including furnishing and installing, trenching under creek (water pipe not included).	150	LF	\$ <u>150.00</u>	\$ <u>22,500.00</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>U.S. 127 TUNNEL (ALTERNATIVE BID NO. 1)</b>					
25.	Stream crossing with crushed stone, including furnishing and installing (water pipe not included).	30	LF	\$ <u>75.00</u>	\$ <u>2,250.00</u>
26.	Special creek crossing meter box, including gate valve, meter, and meter box, furnishing and installing according to detail.	1	EA	\$ <u>8,400.00</u>	\$ <u>8,400.00</u>
27.	Bid hold monthly increase amount after 120 days, up to 365 days.	1	MO	\$ <u>23,550.00</u>	\$ <u>23,550.00</u>
28.	Allowance for geotechnical and concrete material testing services according to Section 01075.	1	LS	\$ <u>5,000</u>	\$ <u>5,000</u>
29.	Allowance for permits according to Section 01075.	1	LS	\$ <u>5,000</u>	\$ <u>5,000</u>
30.	Allowance for security according to Section 01075.	1	LS	\$ <u>7,500</u>	\$ <u>7,500</u>

COMPUTED TOTAL ALTERNATIVE BID NO. 1  
U.S. 127 TUNNEL (PHASE 1), ITEMS 1 THROUGH 30:

Five Million Ninety-Nine Thousand Six Hundred Dollars \$ 5,099,665.00  
(Words) (Numbers)  
sixty-five dollars and zero cents

ALTERNATIVE BID NO. 2  
PVC PIPE VERSUS DI PIPE

With this alternative, portions of the Base Bid items are changed to reflect Alternative No. 2 material.

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>PVC Pipe Versus DI Pipe (Alternative Bid No. 2)</b>					
1.	16 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). Approximate STA. 136+00 to 375+00.	23,900	LF	\$ <u>89.00</u>	\$ <u>2,127,100.00</u>
2.	16 IN PVC, AWWA C905 DR 18, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). Approximate STA. 11+55 to 136+00 and STA. 375+00 to 407+60.	15,720	LF	\$ <u>76.50</u>	\$ <u>1,202,580.00</u>
3.	12 IN PVC, AWWA C900 DR 18, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). Approximate STA. 10+00 to 11+55.	155	LF	\$ <u>85.00</u>	\$ <u>13,175.00</u>
4.	6 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	530	LF	\$ <u>56.00</u>	\$ <u>29,680.00</u>
5.	6 IN PVC, AWWA C900 DR 18, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, bends (unclassified excavation), and bypass of the Monterey Tank.	115	LF	\$ <u>47.00</u>	\$ <u>5,405.00</u>
6.	24 IN minimum steel cover pipe, furnishing and installing, trenching under state maintained roads, including unclassified boring and/or jacking (water pipe not included).	560	LF	\$ <u>490.00</u>	\$ <u>274,400.00</u>
7.	16 IN C.I. AWWA N.R.S. gate valve and box, CIP, includes furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	13	EA	\$ <u>6,550.00</u>	\$ <u>85,150.00</u>



Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>PVC Pipe Versus DI Pipe (Alternative Bid No. 2)</b>					
8.	Combination air release vacuum valve including all associated tees, concrete vault, lid, backing, reducers, and bends (unclassified excavation). CIP according to detail.	4	EA	\$ <u>13,000.00</u>	\$ <u>52,000.00</u>
9.	Fire hydrant for 16 IN DI pipe water mains, including furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation), CIP according to detail.	7	EA	\$ <u>5,000.00</u>	\$ <u>35,000.00</u>
10.	6 IN blowoff hydrant for all sizes of water mains including furnishing, trenching, laying, backfilling, all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation). CIP, according to detail, for the Cedar Creek crossing on the existing 6 IN PVC water main. Also includes abandoning the existing 4 IN and 6 IN water mains under Cedar Creek.	1	EA	\$ <u>5,000.00</u>	\$ <u>5,000.00</u>
11.	Cleanup and restoration, including furnishing, material, daily mulch, and labor according to the Stormwater Pollution Prevention Plan and Drawings.	40,420	LF	\$ <u>2.00</u>	\$ <u>80,840.00</u>
12.	Paved roadway restoration for concrete or bituminous county roads and driveways; no cover pipe, including furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	815	LF	\$ <u>40.00</u>	\$ <u>32,600.00</u>
13.	Gravel roadway restoration for roadway and driveway crossings; no cover pipe, Work includes furnishing, trenching, laying, and backfilling (unclassified excavation).	430	LF	\$ <u>20.00</u>	\$ <u>8,600.00</u>
14.	Tie-in to existing 12 IN water mains including MJ sleeves, furnishing and installation, including unclassified excavation.	1	EA	\$ <u>1,200.00</u>	\$ <u>1,200.00</u>
15.	Tie-in to existing 8 IN water mains including bends, plugs, furnishing and installation, including unclassified excavation, and bypass of the Monterey Tank.	1	EA	\$ <u>1,500.00</u>	\$ <u>1,500.00</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>PVC Pipe Versus DI Pipe (Alternative Bid No. 2)</b>					
16.	Tie-in to existing 6 IN water mains including tapping sleeves, tapping gate valves, MJ sleeves, bends, plugs, furnishing and installation, unclassified excavation, and bypass of the Monterey Tank.	3	EA	\$ <u>3,600.00</u>	\$ <u>10,800.00</u>
17.	Tie-in to existing 4 IN water mains including reducers, plugs, furnishing, and installation, including unclassified excavation.	1	EA	\$ <u>1,000.00</u>	\$ <u>1,000.00</u>
18.	Magnetic flow meter vault with bypass including magnetic flow meter, gate valves, DI pipe including bypass, tees, reducers, bends, concrete vault, lid, backing, electrical transducers, SCADA, and electric/SCADA pole. CIP includes furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	1	EA	\$ <u>77,000.00</u>	\$ <u>77,000.00</u>
19.	Check valve vault with bypass including check valve, gate valves, DI pipe including bypass, tees, reducers, bends, concrete vault, lid, and backing. CIP includes furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	1	EA	\$ <u>35,000.00</u>	\$ <u>35,000.00</u>
20.	PRV valve vault with bypass including PRV valve, gate valves, DI pipe including bypass, tees, reducers, bends, concrete vault, lid, backing, electrical transducers, SCADA, and electric/SCADA pole. CIP includes furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	4	EA	\$ <u>46,500.00</u>	\$ <u>186,000.00</u>
21.	Silt fence including all associated items, stakes, and fence. CIP includes furnishing, trenching, installing, and backfilling according to detail.	31,600	LF	\$ <u>2.00</u>	\$ <u>63,200.00</u>
22.	Straw bales including all associated items, bales, and stakes. CIP includes furnishing, trenching, installing, and backfilling according to detail.	100	EA	\$ <u>5.00</u>	\$ <u>500.00</u>
23.	Stream crossing with 24 IN minimum steel casing pipe and concrete cap, including furnishing and installing, trenching under creek (water pipe not included).	110	LF	\$ <u>150.00</u>	\$ <u>16,500.00</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>PVC Pipe Versus DI Pipe (Alternative Bid No. 2)</b>					
24.	Stream crossing with crushed stone, including furnishing and installing (water pipe not included).	45	LF	\$ <u>75.00</u>	\$ <u>3,375.00</u>
25.	Special creek crossing meter box, including gate valve, meter, and meter box, furnishing and installing according to detail.	1	EA	\$ <u>8,400.00</u>	\$ <u>8,400.00</u>
26.	Bid hold monthly increase amount after 120 days, up to 365 days.	1	MO	\$ <u>43,550.00</u>	\$ <u>43,550.00</u>
27.	Allowance for geotechnical and concrete material testing services according to Section 01075.	1	LS	\$ <u>5,000</u>	\$ <u>5,000</u>
28.	Allowance for permits according to Section 01075.	1	LS	\$ <u>5,000</u>	\$ <u>5,000</u>
29.	Allowance for security according to Section 01075.	1	LS	\$ <u>7,500</u>	\$ <u>7,500</u>

COMPUTED TOTAL ALTERNATIVE BID NO. 2  
PVC PIPE VERSUS DI PIPE, PHASE 1 (ITEMS 1 THROUGH 29):

Four Million Four hundred Seventeen <sup>Thousand</sup> Fifty-five Dollars \$ 4,417,055.00  
 (Words) Dollars and zero Cents (Numbers)

ALTERNATIVE BID NO. 3  
U.S. 127 WATER TRANSMISSION MAIN (PHASE 1)  
(INCLUDES SOME OWNER-PROVIDED MATERIALS)

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>U.S. 127 Water Transmission Main, Alternative Bid No. 3 (Includes Some Owner-Provided Material)</b>					
1.	16 IN DI pipe, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL INCLUDING PIPING, GATE VALVES, FITTINGS, AND HYDRANTS.	39,620	LF	\$ <u>46.45</u>	\$ <u>1,840,349.00</u>
2.	12 IN DI pipe, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, AND HYDRANTS.	155	LF	\$ <u>46.00</u>	\$ <u>7,130.00</u>
3.	6 IN DI pipe, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL INCLUDING PIPING, GATE VALVES, FITTINGS, AND HYDRANTS.	530	LF	\$ <u>40.00</u>	\$ <u>21,200.00</u>
4.	6 IN PVC, AWWA C900 DR 18, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, bends (unclassified excavation), and bypass of the Monterey Tank. OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, AND HYDRANTS.	115	LF	\$ <u>35.00</u>	\$ <u>4,025.00</u>
5.	24 IN minimum steel cover pipe, furnishing and installing, trenching under state maintained roads, including unclassified boring and/or jacking (water pipe not included).	560	LF	\$ <u>490.00</u>	\$ <u>274,400.00</u>
6.	16 IN C.I. AWWA N.R.S. gate valve and box. CIP includes trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, AND HYDRANTS.	13	EA	\$ <u>900.00</u>	\$ <u>11,700.00</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>U.S. 127 Water Transmission Main, Alternative Bid No. 3 (Includes Some Owner-Provided Material)</b>					
7.	Combination air release vacuum valve including all associated tees, concrete vault, lid, backing, reducers, and bends (unclassified excavation). CIP according to detail.	4	EA	\$ <u>13,000.00</u>	\$ <u>52,000.00</u>
8.	Fire hydrant for 16 IN DI pipe water mains, including trenching, laying, backfilling, all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation). CIP according to detail. OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, AND HYDRANTS.	7	EA	\$ <u>1,400.00</u>	\$ <u>9,800.00</u>
9.	6 IN blowoff hydrant for all sizes of water mains, including trenching, laying, and backfilling including all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation). CIP, according to detail, for the Cedar Creek crossing on the existing 6 IN PVC water main. Also includes abandoning the existing 4 IN and 6 IN water mains under Cedar Creek. OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, AND HYDRANTS.	1	EA	\$ <u>1,400.00</u>	\$ <u>1,400.00</u>
10.	Cleanup and restoration, including furnishing, material, daily mulch, and labor according to the Stormwater Pollution Prevention Plan and Drawings.	40,420	LF	\$ <u>2.00</u>	\$ <u>80,840.00</u>
11.	Paved roadway restoration for concrete or bituminous county roads and driveways; no cover pipe, including furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	815	LF	\$ <u>40.00</u>	\$ <u>32,600.00</u>
12.	Gravel roadway restoration for roadway and driveway crossings; no cover pipe, including furnishing, trenching, laying, and backfilling (unclassified excavation).	430	LF	\$ <u>20.00</u>	\$ <u>8,600.00</u>
13.	Tie-in to existing 12 IN water mains including MJ sleeves, furnishing, and installation, including unclassified excavation.	1	EA	\$ <u>1,200.00</u>	\$ <u>1,200.00</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>U.S. 127 Water Transmission Main, Alternative Bid No. 3 (Includes Some Owner-Provided Material)</b>					
14.	Tie-in to existing 8 IN water mains including bends, plugs, furnishing, and installation, unclassified excavation, and bypass of the Monterey Tank.	1	EA	\$ <u>1,500.00</u>	\$ <u>1,500.00</u>
15.	Tie-in to existing 6 IN water mains including tapping sleeves, tapping gate valves, MJ sleeves, bends, plugs, furnishing and installation, including unclassified excavation, and bypass of the Monterey Tank.	3	EA	\$ <u>3,600.00</u>	\$ <u>10,800.00</u>
16.	Tie-in to existing 4 IN water mains including reducers, plugs, furnishing, and installation, and unclassified excavation.	1	EA	\$ <u>1,000.00</u>	\$ <u>1,000.00</u>
17.	Magnetic flow meter vault with bypass including magnetic flow meter, gate valves, DI pipe, bypass, tees, reducers, bends, concrete vault, lid, backing, electrical transducers, SCADA, and electric/SCADA pole. CIP includes furnishing, trenching, laying, and backfilling (unclassified excavation), according to detail.	1	EA	\$ <u>77,000.00</u>	\$ <u>77,000.00</u>
18.	Check valve vault with bypass including check valve, gate valves, DI pipe, including bypass, tees, reducers, bends, concrete vault, lid, and backing. CIP includes furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	1	EA	\$ <u>35,000.00</u>	\$ <u>35,000.00</u>
19.	PRV valve vault with bypass including PRV valve, gate valves, DI pipe including bypass, tees, reducers, bends, concrete vault, lid, backing, electrical transducers, SCADA, and electric/SCADA pole. CIP includes furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	4	EA	\$ <u>46,500.00</u>	\$ <u>186,000.00</u>
20.	Silt fence including all associated items, stakes, and fence. CIP includes furnishing, trenching, installing, and backfilling according to detail.	31,600	LF	\$ <u>2.00</u>	\$ <u>63,200.00</u>
21.	Straw bales including all associated items, bales, and stakes. CIP includes furnishing, trenching, installing, and backfilling according to detail.	100	EA	\$ <u>5.00</u>	\$ <u>500.00</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>U.S. 127 Water Transmission Main, Alternative Bid No. 3 (Includes Some Owner-Provided Material)</b>					
22.	Stream crossing with 24 IN minimum steel casing pipe and concrete cap including furnishing, installing, and trenching under creek (water pipe not included).	110	LF	\$ <u>150.00</u>	\$ <u>16,500.00</u>
23.	Stream crossing with crushed stone including furnishing and installing (water pipe not included).	45	LF	\$ <u>75.00</u>	\$ <u>3,375.00</u>
24.	Special creek crossing meter box, including gate valve, meter, meter box, furnishing, and installing according to detail.	1	EA	\$ <u>8,400.00</u>	\$ <u>8,400.00</u>
25.	Bid hold monthly increase amount after 120 days, up to 365 days.	1	MO	\$ <u>26,200.00</u>	\$ <u>26,200.00</u>
26.	Allowance for geotechnical and concrete material testing services according to Section 01075.	1	LS	\$ <u>5,000</u>	\$ <u>5,000</u>
27.	Allowance for permits according to Section 01075.	1	LS	\$ <u>5,000</u>	\$ <u>5,000</u>
28.	Allowance for security according to Section 01075.	1	LS	\$ <u>7,500</u>	\$ <u>7,500</u>

## COMPUTED TOTAL ALTERNATIVE BID NO. 3

U.S. 127 WATER TRANSMISSION MAIN, PHASE 1, (INCLUDES SOME OWNER-PROVIDED MATERIALS)

(ITEMS 1 THROUGH 28):

Two Million Seven hundred Ninety-Two Thousand Dollars \$ 2,792,219.00  
 (Words) (Numbers)  
 Two hundred nineteen dollars and Zero Centy

ALTERNATIVE BID NO. 4  
 KY 607 WATER TRANSMISSION MAIN, PHASE 1  
 (INCLUDES SOME OWNER-PROVIDED MATERIALS)

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>KY 607 Water Transmission Main</b>					
1.	6 IN PVC, AWWA C900 DR 14, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, AND HYDRANTS.	10,700	LF	\$ <u>31.00</u>	\$ <u>331,700.00</u>
2.	6 IN PVC, AWWA C900 DR 18, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, AND HYDRANTS.	8,475	LF	\$ <u>29.00</u>	\$ <u>245,775.00</u>
3.	10 IN minimum steel cover pipe, furnishing, installing, and trenching under state maintained roads including unclassified boring and jacking (water pipe not included). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, AND HYDRANTS.	285	LF	\$ <u>300.00</u>	\$ <u>85,500.00</u>
4.	6 IN C.I. AWWA N.R.S. gate valve and box, CIP, including furnishing, trenching, laying, backfilling, all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, AND HYDRANTS.	8	EA	\$ <u>600.00</u>	\$ <u>4,800.00</u>
5.	6 IN blowoff hydrant for all sizes of water mains, including furnishing, trenching, laying, backfilling, including all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation). CIP according to detail. OWNER WILL PROVIDE MATERIAL THAT WILL INCLUDE PIPING, GATE VALVES, FITTINGS, AND HYDRANTS.	16	EA	\$ <u>1,500.00</u>	\$ <u>24,000.00</u>



Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>KY 607 Water Transmission Main</b>					
6.	Customer services same side of road as main with tandem meter setter and individual pressure reducing valve, CIP, according to detail.	8	EA	\$ <u>1,200.00</u>	\$ <u>9,600.00</u>
7.	Customer services opposite side of road as main with tandem meter setter and individual pressure reducing valve, CIP, according to detail.	4	EA	\$ <u>1,900.00</u>	\$ <u>7,600.00</u>
8.	Additional 3/4 IN service pipe, furnishing, trenching, laying, and backfilling where required in addition to Items 5 and 6.	100	LF	\$ <u>16.00</u>	\$ <u>1,600.00</u>
9.	Cleanup and restoration, including furnishing, material, daily mulch, and labor according to the Stormwater Pollution Prevention Plan and Drawings.	19,175	LF	\$ <u>2.00</u>	\$ <u>38,350.00</u>
10.	Paved roadway restoration for concrete or bituminous county roads and driveways; no cover pipe, including furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	40	LF	\$ <u>35.00</u>	\$ <u>1,400.00</u>
11.	Gravel roadway restoration for roadway and driveway crossings; no cover pipe, including furnishing, trenching, laying, and backfilling (unclassified excavation).	230	LF	\$ <u>16.00</u>	\$ <u>3,680.00</u>
12.	Tie-in to existing 6 IN water mains including tapping sleeves, tapping gate valves, furnishing, installation, and unclassified excavation.	2	EA	\$ <u>3,400.00</u>	\$ <u>6,800.00</u>
13.	Silt fence including all associated items, stakes, and fence. CIP includes furnishing, trenching, installing, and backfilling according to detail.	19,140	LF	\$ <u>2.00</u>	\$ <u>38,280.00</u>
14.	Straw bales including all associated items, bales, stakes, CIP, furnishing, trenching, installing, and backfilling according to detail.	55	EA	\$ <u>5.00</u>	\$ <u>275.00</u>
15.	Stream crossing with 10 IN minimum steel casing pipe and concrete cap, including furnishing and installing, trenching under creek (water pipe not included).	75	LF	\$ <u>100.00</u>	\$ <u>7,500.00</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>KY 607 Water Transmission Main</b>					
16.	Stream crossing with crushed stone including furnishing and installing (water pipe not included).	15	LF	\$ <u>35.00</u>	\$ <u>525.00</u>
17.	Special creek crossing meter box, including gate valve, meter, and meter box, furnishing and installing according to detail.	2	EA	\$ <u>3,100.00</u>	\$ <u>6,200.00</u>
18.	Bid hold monthly increase amount after 120 days, up to 365 days.	1	MO	\$ <u>6,900.00</u>	\$ <u>6,900.00</u>

COMPUTED TOTAL ALTERNATIVE BID NO. 4

KY 607 WATER TRANSMISSION MAIN, PHASE 1, INCLUDES SOME OWNER-PROVIDED MATERIALS, (ITEMS 1 THROUGH 18):

Eight hundred twenty thousand Four hundred Eighty- Dollars \$ 820,485.00  
 (Words) (Numbers)  
 Five Dollars and Zero Cents

ALTERNATIVE BID NO. 5  
HDPE PIPE VERSUS DI PIPE

With this alternative, portions of the Base Bid items are changed to reflect Alternative No. 5 material.

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>HDPE Pipe Versus DI Pipe (Alternative Bid No. 5)</b>					
1.	16 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). Approximate STA. 136+00 to 375+00.	23,900	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
2.	24 IN HDPE, AWWA C906 DR 7.3, furnishing, trenching, laying, and backfilling including all associated connections, tees, concrete backing, reducers, plugs, and bends (unclassified excavation). Approximate STA. 11+55 to 136+00 and STA. 375+00 to 407+60.	15,720	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
3.	18 IN HDPE, AWWA C906 DR 7.3, furnishing, trenching, laying, and backfilling including all associated connections, tees, concrete backing, reducers, plugs, and bends (unclassified excavation). Approximate STA. 10+00 to 11+55.	155	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
4.	6 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	530	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
5.	6 IN PVC, AWWA C900 DR 18, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, bends (unclassified excavation), and bypass of the Monterey Tank.	115	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
6.	36 IN minimum steel cover pipe, furnishing, installing, and trenching under state maintained roads including unclassified boring and jacking (water pipe not included).	200	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
7.	24 IN minimum steel cover pipe, furnishing and installing, trenching under state maintained roads, including unclassified boring and/or jacking (water pipe not included).	360	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>HDPE Pipe Versus DI Pipe (Alternative Bid No. 5)</b>					
8.	16 IN C.I. AWWA N.R.S. gate valve and box, CIP, includes furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	13	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
9.	Combination air release vacuum valve including all associated tees, concrete vault, lid, backing, reducers, and bends (unclassified excavation). CIP according to detail.	4	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
10.	Fire hydrant for 16 IN DI and 24 IN HDPE pipe water mains, including furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation), CIP according to detail.	7	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
11.	6 IN blowoff hydrant for all sizes of water mains including furnishing, trenching, laying, backfilling, all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation). CIP, according to detail, for the Cedar Creek crossing on the existing 6 IN PVC water main. Also includes abandoning the existing 4 IN and 6 IN water mains under Cedar Creek.	1	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
12.	Cleanup and restoration, including furnishing, material, daily mulch, and labor according to the Stormwater Pollution Prevention Plan and Drawings.	40,420	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
13.	Paved roadway restoration for concrete or bituminous county roads and driveways; no cover pipe, including furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	815	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
14.	Gravel roadway restoration for roadway and driveway crossings; no cover pipe, Work includes furnishing, trenching, laying, and backfilling (unclassified excavation).	430	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>HDPE Pipe Versus DI Pipe (Alternative Bid No. 5)</b>					
15.	Tie-in to existing 12 IN water mains including MJ sleeves, furnishing and installation, including unclassified excavation.	1	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
16.	Tie-in to existing 8 IN water mains including bends, plugs, furnishing and installation, including unclassified excavation, and bypass of the Monterey Tank.	1	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
17.	Tie-in to existing 6 IN water mains including tapping sleeves, tapping gate valves, MJ sleeves, bends, plugs, furnishing and installation, unclassified excavation, and bypass of the Monterey Tank.	3	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
18.	Tie-in to existing 4 IN water mains including reducers, plugs, furnishing, and installation, including unclassified excavation.	1	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
19.	Magnetic flow meter vault with bypass including magnetic flow meter, gate valves, DI pipe including bypass, tees, reducers, bends, concrete vault, lid, backing, electrical transducers, SCADA, and electric/SCADA pole. CIP includes furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	1	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
20.	Check valve vault with bypass including check valve, gate valves, DI pipe including bypass, tees, reducers, bends, concrete vault, lid, and backing. CIP includes furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	1	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
21.	PRV valve vault with bypass including PRV valve, gate valves, DI pipe including bypass, tees, reducers, bends, concrete vault, lid, backing, electrical transducers, SCADA, and electric/SCADA pole. CIP includes furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	4	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
22.	Silt fence including all associated items, stakes, and fence. CIP includes furnishing, trenching, installing, and backfilling according to detail.	31,600	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>HDPE Pipe Versus DI Pipe (Alternative Bid No. 5)</b>					
23.	Straw bales including all associated items, bales, and stakes. CIP includes furnishing, trenching, installing, and backfilling according to detail.	100	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
24.	Stream crossing with 24 IN minimum steel casing pipe and concrete cap, including furnishing and installing, trenching under creek (water pipe not included).	110	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
25.	Stream crossing with crushed stone, including furnishing and installing (water pipe not included).	45	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
26.	Special creek crossing meter box, including gate valve, meter, and meter box, furnishing and installing according to detail.	1	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
27.	Bid hold monthly increase amount after 120 days, up to 365 days.	1	MO	\$ <u>No Bid</u>	\$ <u>No Bid</u>
28.	Allowance for geotechnical and concrete material testing services according to Section 01075.	1	LS	\$5,000	\$5,000
29.	Allowance for permits according to Section 01075.	1	LS	\$5,000	\$5,000
30.	Allowance for security according to Section 01075.	1	LS	\$7,500	\$7,500

COMPUTED TOTAL ALTERNATIVE BID NO. 5  
HDPE PIPE VERSUS DI PIPE, PHASE 1 (ITEMS 1 THROUGH 30):

No Bid Dollars \$ No Bid  
(Words) (Numbers)

HDPE Pricing was more than double the price of DIP.

## U.S. 127 AND KY 22 WATER TRANSMISSION MAIN (PHASE 2)

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>U.S. 127 AND KY 22 WATER TRANSMISSION MAIN (PHASE 2)</b>					
1.	16 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	44,945	LF	\$ <u>82.00</u>	\$ <u>3,685,490.00</u>
2.	8 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	100	LF	\$ <u>59.00</u>	\$ <u>5,900.00</u>
3.	6 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	90	LF	\$ <u>60.00</u>	\$ <u>5,400.00</u>
4.	24 IN minimum steel cover pipe, furnishing and installing, trenching under state maintained roads, including unclassified boring and/or jacking (water pipe not included).	330	LF	\$ <u>490.00</u>	\$ <u>161,700.00</u>
5.	16 IN minimum steel cover pipe, furnishing and installing, trenching under state maintained roads, including unclassified boring and/or jacking (water pipe not included).	60	LF	\$ <u>325.00</u>	\$ <u>19,500.00</u>
6.	16 IN C.I. AWWA N.R.S. gate valve and box, CIP, including furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	20	EA	\$ <u>6,550.00</u>	\$ <u>131,000.00</u>
7.	6 IN C.I. AWWA N.R.S. gate valve and box, CIP, includes furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	5	EA	\$ <u>1,100.00</u>	\$ <u>5,500.00</u>
8.	Fire hydrant for 16 IN DI pipe water mains, including furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation), CIP, according to detail.	15	EA	\$ <u>5,000.00</u>	\$ <u>75,000.00</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>U.S. 127 AND KY 22 WATER TRANSMISSION MAIN (PHASE 2)</b>					
9.	Cleanup and restoration, including furnishing, material, daily mulch, and labor according to the Stormwater Pollution Prevention Plan and Drawings.	45,130	LF	\$ <u>2.00</u>	\$ <u>90,260.00</u>
10.	Paved roadway restoration for concrete or bituminous county roads and driveways; no cover pipe, including furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	725	LF	\$ <u>40.00</u>	\$ <u>29,000.00</u>
11.	Gravel roadway restoration for roadway and driveway crossings; no cover pipe, including furnishing, trenching, laying, and backfilling (unclassified excavation).	400	LF	\$ <u>20.00</u>	\$ <u>8,000.00</u>
12.	Tie-in to existing 8 IN water mains including tapping sleeve, tapping gate valve, furnishing and installation, including unclassified excavation.	1	EA	\$ <u>4,500.00</u>	\$ <u>4,500.00</u>
13.	Tie-in to existing 6 IN water mains including tapping sleeve, tapping gate valve, furnishing and installation, including unclassified excavation.	2	EA	\$ <u>3,400.00</u>	\$ <u>6,800.00</u>
14.	PRV valve vault with bypass including PRV valve, gate valves, DI pipe including bypass, tees, reducers, bends, concrete vault, lid, backing, electrical transducers, SCADA, and electric/SCADA pole. CIP includes furnishing, trenching, laying, and backfilling (unclassified excavation), according to detail.	1	EA	\$ <u>26,350.00</u>	\$ <u>26,350.00</u>
15.	Silt fence including all associated items, stakes, and fence. CIP including furnishing, trenching, installing, and backfilling according to detail.	35,025	LF	\$ <u>2.00</u>	\$ <u>70,050.00</u>
16.	Straw bales including all associated items, bales, and stakes. CIP includes furnishing, trenching, installing, and backfilling according to detail.	135	EA	\$ <u>5.00</u>	\$ <u>675.00</u>
17.	Stream crossing with 24 IN minimum steel casing pipe and concrete cap, including furnishing and installing, trenching under creek (water pipe not included).	145	LF	\$ <u>150.00</u>	\$ <u>21,750.00</u>



Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>U.S. 127 AND KY 22 WATER TRANSMISSION MAIN (PHASE 2)</b>					
18.	Special creek crossing meter box, including gate valve, meter, meter box, furnishing, and installing according to detail.	1	EA	\$ <u>8,400.00</u>	\$ <u>8,400.00</u>
19.	24 IN PVC SDR 35 casing pipe under existing force mains, including furnishing and installing (water pipe not included).	50	LF	\$ <u>155.00</u>	\$ <u>7,750.00</u>
20.	Bid hold monthly increase amount after 120 days, up to 365 days.	1	MO	\$ <u>30,000.00</u>	\$ <u>30,000.00</u>
21.	Allowance for geotechnical and concrete material testing services according to Section 01075.	1	LS	\$ <u>5,000</u>	\$ <u>5,000</u>
22.	Allowance for permits according to Section 01075.	1	LS	\$ <u>5,000</u>	\$ <u>5,000</u>
23.	Allowance for security according to Section 01075.	1	LS	\$ <u>7,500</u>	\$ <u>7,500</u>

COMPUTED TOTAL BASE BID  
 U.S. 127 AND KY 22 WATER TRANSMISSION MAIN (PHASE 2)  
 (ITEMS 1 THROUGH 23):

Four Million Four hundred Ten Thousand Dollars \$ 4,410,525.00  
 (Words) (Numbers)  
Five hundred Twenty-Five Dollars and Zero Cents

ALTERNATIVE BID NO. 1  
PVC PIPE VERSUS DI PIPE (PHASE 2)

With this alternative, portions of the Base Bid items are changed to reflect Alternative No. 1 (Phase 2) material.

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>PVC Pipe Versus DI Pipe, Phase 2 (Alternative Bid No. 1)</b>					
1.	16 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). Approximate STA. 10+00 to 155+00 (Line "A").	14,500	LF	\$ <u>84.00</u>	\$ <u>1,218,000.00</u>
2.	16 IN AWWA C905 DR 18, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). Approximate STA. 155+00 to 396+50 (Line "A") and STA. 10+00 to STA 72+87 (Line "C").	30,445	LF	\$ <u>68.00</u>	\$ <u>2,070,260.00</u>
3.	8 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	100	LF	\$ <u>59.00</u>	\$ <u>5,900.00</u>
4.	6 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	90	LF	\$ <u>60.00</u>	\$ <u>5,400.00</u>
5.	24 IN minimum steel cover pipe, furnishing and installing, trenching under state maintained roads, including unclassified boring and/or jacking (water pipe not included).	330	LF	\$ <u>490.00</u>	\$ <u>161,700.00</u>
6.	16 IN minimum steel cover pipe, furnishing and installing, trenching under state maintained roads, including unclassified boring and/or jacking (water pipe not included).	60	LF	\$ <u>325.00</u>	\$ <u>19,500.00</u>
7.	16 IN C.I. AWWA N.R.S. gate valve and box, CIP, including furnishing, trenching, laying and backfilling, all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	20	EA	\$ <u>6,550.00</u>	\$ <u>131,000.00</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>PVC Pipe Versus DI Pipe, Phase 2 (Alternative Bid No. 1)</b>					
8.	6 IN C.I. AWWA N.R.S. gate valve and box, CIP, including furnishing, trenching, laying, backfilling, all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	5	EA	\$ <u>1,100.00</u>	\$ <u>5,500.00</u>
9.	Fire hydrant for 16 IN DI pipe water mains, including furnishing, trenching, laying, backfilling, all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation). CIP according to detail.	15	EA	\$ <u>5,000.00</u>	\$ <u>75,000.00</u>
10.	Cleanup and restoration, including furnishing, material, daily mulch, and labor, according to Stormwater Pollution Prevention Plan and drawings.	45,130	LF	\$ <u>2.00</u>	\$ <u>90,260.00</u>
11.	Paved roadway restoration for concrete or bituminous county roads and driveways; no cover pipe, including furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	725	LF	\$ <u>40.00</u>	\$ <u>29,000.00</u>
12.	Gravel roadway restoration for roadway and driveway crossings; no cover pipe, including furnishing, trenching, laying, and backfilling (unclassified excavation).	400	LF	\$ <u>20.00</u>	\$ <u>8,000.00</u>
13.	Tie-in to existing 8 IN water mains including tapping sleeve, tapping gate and valve, furnishing and installation, including unclassified excavation.	1	EA	\$ <u>4,500.00</u>	\$ <u>4,500.00</u>
14.	Tie-in to existing 6 IN water mains including tapping sleeve, tapping gate and valve, furnishing and installation, including unclassified excavation.	2	EA	\$ <u>3,400.00</u>	\$ <u>6,800.00</u>
15.	PRV valve vault with bypass including PRV valve, gate valves, DI pipe including bypass, tees, reducers, bends, concrete vault, lid, backing, electrical transducers, SCADA, and electric/SCADA pole. CIP includes furnishing, trenching, laying, and backfilling (unclassified excavation), according to detail.	1	EA	\$ <u>26,350.00</u>	\$ <u>26,350.00</u>
16.	Silt fence including all associated items, stakes, and fence. CIP includes furnishing, trenching, installing, and backfilling, according to detail.	35,025	LF	\$ <u>2.00</u>	\$ <u>70,050.00</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>PVC Pipe Versus DI Pipe, Phase 2 (Alternative Bid No. 1)</b>					
17.	Straw bales including all associated items, bales, and stakes. CIP includes furnishing, trenching, installing and backfilling, according to detail.	135	EA	\$ <u>5.00</u>	\$ <u>675.00</u>
18.	Stream crossing with 24 IN minimum steel casing pipe and concrete cap, including furnishing and installing, trenching under creek (water pipe not included).	145	LF	\$ <u>150.00</u>	\$ <u>21,750.00</u>
19.	Special creek crossing meter box, including gate valve, meter, meter box, furnishing and installing, according to detail.	1	EA	\$ <u>8,400.00</u>	\$ <u>8,400.00</u>
20.	24 IN PVC SDR 35 casing pipe under existing force mains, including furnishing and installing (water pipe not included).	50	LF	\$ <u>155.00</u>	\$ <u>7,750.00</u>
21.	Bid hold monthly increase amount after 120 days, up to 365 days.	1	MO	\$ <u>68,550.00</u>	\$ <u>68,550.00</u>
22.	Allowance for geotechnical and concrete material testing services according to Section 01075.	1	LS	\$ <u>5,000</u>	\$ <u>5,000</u>
23.	Allowance for permits according to Section 01075.	1	LS	\$ <u>5,000</u>	\$ <u>5,000</u>
24.	Allowance for Security per Specification Section 01075.	1	LS	\$ <u>7,500</u>	\$ <u>7,500</u>

COMPUTED TOTAL ALTERNATIVE BID NO. 1  
PVC PIPE VERSUS DI PIPE, PHASE 2 (ITEMS 1 THROUGH 24):

Four Million Fifty-One Thousand Eight Hundred Dollars \$ 4,051,845.00  
(Words) (Numbers)  
Forty-Five Dollars and Zero Cents

ALTERNATIVE BID NO. 2  
 U.S. 127 AND KY 22 WATER TRANSMISSION MAIN (PHASE 2)  
 (INCLUDES SOME OWNER-PROVIDED MATERIAL)

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>U.S. 127 AND KY 22 WATER TRANSMISSION MAIN, PHASE 2 (INCLUDES SOME OWNER-PROVIDED MATERIAL)</b>					
1.	16 IN DI pipe, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL INCLUDING PIPING, GATE VALVES, FITTINGS, AND HYDRANTS.	44,945	LF	\$ <u>40.00</u>	\$ <u>1,797,800.00</u>
2.	8 IN DI pipe, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL INCLUDING PIPING, GATE VALVES, FITTINGS, AND HYDRANTS.	100	LF	\$ <u>46.00</u>	\$ <u>4,600.00</u>
3.	6 IN DI pipe, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL INCLUDING PIPING, GATE VALVES, FITTINGS, AND HYDRANTS.	90	LF	\$ <u>45.00</u>	\$ <u>4,050.00</u>
4.	24 IN minimum steel cover pipe, furnishing and installing, trenching under state maintained roads, including unclassified boring and/or jacking (water pipe not included).	330	LF	\$ <u>490.00</u>	\$ <u>161,700.00</u>
5.	16 IN minimum steel cover pipe, furnishing, installing, and trenching under state maintained roads, including unclassified boring and/or jacking (water pipe not included).	60	LF	\$ <u>325.00</u>	\$ <u>19,500.00</u>
6.	16 IN C.I. AWWA N.R.S. gate valve and box. CIP includes trenching, laying, and backfilling, all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL INCLUDING PIPING, GATE VALVES, FITTINGS, AND HYDRANTS.	22	EA	\$ <u>900.00</u>	\$ <u>19,800.00</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>U.S. 127 AND KY 22 WATER TRANSMISSION MAIN, PHASE 2 (INCLUDES SOME OWNER-PROVIDED MATERIAL)</b>					
7.	6 IN C.I. AWWA N.R.S. gate valve and box. CIP includes trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). OWNER WILL PROVIDE MATERIAL INCLUDING PIPING, GATE VALVES, FITTINGS, AND HYDRANTS.	5	EA	\$ <u>655.00</u>	\$ <u>3,275.00</u>
8.	Fire hydrant for 16 IN DI pipe water mains, including trenching, laying, and backfilling including all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation). CIP according to detail. OWNER WILL PROVIDE MATERIAL INCLUDING PIPING, GATE VALVES, FITTINGS, AND HYDRANTS.	15	EA	\$ <u>1,400.00</u>	\$ <u>21,000.00</u>
9.	Cleanup and restoration including furnishing, material, daily mulch, and labor according to the Stormwater Pollution Prevention Plan and Drawings.	45,130	LF	\$ <u>2.00</u>	\$ <u>90,260.00</u>
10.	Paved roadway restoration for concrete or bituminous county roads and driveways; no cover pipe, including furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	725	LF	\$ <u>40.00</u>	\$ <u>29,000.00</u>
11.	Gravel roadway restoration for roadway and driveway crossings; no cover pipe, including furnishing, trenching, laying, and backfilling (unclassified excavation).	400	LF	\$ <u>20.00</u>	\$ <u>8,000.00</u>
12.	Tie-in to existing 8 IN water mains including tapping sleeve, tapping gate valve, furnishing and installation, including unclassified excavation.	1	EA	\$ <u>4,500.00</u>	\$ <u>4,500.00</u>
13.	Tie-in to existing 6 IN water mains including tapping sleeve, tapping gate valve, furnishing and installation, including unclassified excavation.	2	EA	\$ <u>3,400.00</u>	\$ <u>6,800.00</u>
14.	PRV valve vault with bypass including PRV valve, gate valves, DI pipe including bypass, tees, reducers, bends, concrete vault, lid, backing, electrical transducers, SCADA, and electric/SCADA pole. CIP includes furnishing, trenching, laying, and backfilling (unclassified excavation), according to detail.	1	EA	\$ <u>26,350.00</u>	\$ <u>26,350.00</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>U.S. 127 AND KY 22 WATER TRANSMISSION MAIN, PHASE 2 (INCLUDES SOME OWNER-PROVIDED MATERIAL)</b>					
15.	Silt fence including all associated items, stakes, and fence. CIP includes furnishing, trenching, installing, and backfilling according to detail.	35,025	LF	\$ <u>2.00</u>	\$ <u>70,050.00</u>
16.	Straw bales including all associated items, bales, and stakes. CIP includes furnishing, trenching, installing, and backfilling according to detail.	135	EA	\$ <u>5.00</u>	\$ <u>675.00</u>
17.	Stream crossing with 24 IN minimum steel casing pipe and concrete cap, including furnishing and installing, trenching under creek (water pipe not included).	145	LF	\$ <u>150.00</u>	\$ <u>21,750.00</u>
18.	Special creek crossing meter box, including gate valve, meter, meter box, furnishing and installing, according to detail.	1	EA	\$ <u>8,400.00</u>	\$ <u>8,400.00</u>
19.	24 IN PVC SDR 35 casing pipe under existing force mains, including furnishing and installing (water pipe not included).	50	LF	\$ <u>155.00</u>	\$ <u>7,750.00</u>
20.	Bid hold monthly increase amount after 120 days, up to 365 days.	1	MO	\$ <u>30,000.00</u>	\$ <u>30,000.00</u>
21.	Allowance for geotechnical and concrete material testing services according to Section 01075.	1	LS	\$ <u>5,000</u>	\$ <u>5,000</u>
22.	Allowance for permits according to Section 01075.	1	LS	\$ <u>5,000</u>	\$ <u>5,000</u>
23.	Allowance for security according to Section 01075.	1	LS	\$ <u>7,500</u>	\$ <u>7,500</u>

COMPUTED TOTAL ALTERNATIVE BID NO. 2  
U.S. 127 AND KY 22 WATER TRANSMISSION MAIN, PHASE 2  
(INCLUDES SOME OWNER-PROVIDED MATERIAL)  
(ITEMS 1 THROUGH 23):

Two Million Three hundred Fifty-Two Thousand Dollars \$ 2,352,760.00  
Seven hundred Sixty dollars (Words) (Numbers)

ALTERNATIVE BID NO. 3  
HDPE PIPE VERSUS DI PIPE (PHASE 2)

With this alternative, portions of the Base Bid items are changed to reflect Alternative No. 3 (Phase 2) material.

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>HDPE Pipe Versus DI Pipe, Phase 2 (Alternative Bid No. 3)</b>					
1.	16 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation). Approximate STA. 10+00 to 155+00 (Line "A").	14,500	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
2.	24 IN AWWA C906 DR 7.3, furnishing, trenching, laying, and backfilling including all associated connections, tees, concrete backing, reducers, plugs, and bends (unclassified excavation). Approximate STA. 155+00 to 396+50. (Line "A") and STA. 10+00 to 72+87 (Line "C").	30,445	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
3.	8 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	100	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
4.	6 IN DI pipe, furnishing, trenching, laying, and backfilling including all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	90	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
5.	36 IN minimum steel cover pipe including furnishing, installing, and trenching under state maintained roads, including unclassified boring and jacking (water pipe not included).	210	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
6.	24 IN minimum steel cover pipe, furnishing and installing, trenching under state maintained roads, including unclassified boring and/or jacking (water pipe not included).	120	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
7.	16 IN minimum steel cover pipe, furnishing and installing, trenching under state maintained roads, including unclassified boring and/or jacking (water pipe not included).	60	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>



Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>HDPE Pipe Versus DI Pipe, Phase 2 (Alternative Bid No. 3)</b>					
8.	16 IN C.I. AWWA N.R.S. gate valve and box, CIP, including furnishing, trenching, laying and backfilling, all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	20	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
9.	6 IN C.I. AWWA N.R.S. gate valve and box, CIP, including furnishing, trenching, laying, backfilling, all associated tees, concrete backing, reducers, plugs, and bends (unclassified excavation).	5	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
10.	Fire hydrant for 16 IN DI and 24 IN HDPE pipe water mains, including furnishing, trenching, laying, backfilling, all associated tees, concrete backing, reducers, bends, gate valve, gate valve box, and all appurtenances (unclassified excavation). CIP according to detail.	15	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
11.	Cleanup and restoration, including furnishing, material, daily mulch, and labor, according to Stormwater Pollution Prevention Plan and drawings.	45,130	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
12.	Paved roadway restoration for concrete or bituminous county roads and driveways; no cover pipe, including furnishing, trenching, laying, and backfilling (unclassified excavation) according to detail.	725	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
13.	Gravel roadway restoration for roadway and driveway crossings; no cover pipe, including furnishing, trenching, laying, and backfilling (unclassified excavation).	400	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
14.	Tie-in to existing 8 IN water mains including tapping sleeve, tapping gate and valve, furnishing and installation, including unclassified excavation.	1	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
15.	Tie-in to existing 6 IN water mains including tapping sleeve, tapping gate and valve, furnishing and installation, including unclassified excavation.	2	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
16.	PRV valve vault with bypass including PRV valve, gate valves, DI pipe including bypass, tees, reducers, bends, concrete vault, lid, backing, electrical transducers, SCADA, and electric/SCADA pole. CIP includes furnishing, trenching, laying, and backfilling (unclassified excavation), according to detail.	1	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>

Item No.	Description	Quantity	Unit	Unit Cost	Extension
<b>HDPE Pipe Versus DI Pipe, Phase 2 (Alternative Bid No. 3)</b>					
17.	Silt fence including all associated items, stakes, and fence. CIP includes furnishing, trenching, installing, and backfilling, according to detail.	35,025	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
18.	Straw bales including all associated items, bales, and stakes. CIP includes furnishing, trenching, installing and backfilling, according to detail.	135	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
19.	Stream crossing with 24 IN minimum steel casing pipe and concrete cap, including furnishing and installing, trenching under creek (water pipe not included).	145	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
20.	Special creek crossing meter box, including gate valve, meter, meter box, furnishing and installing, according to detail.	1	EA	\$ <u>No Bid</u>	\$ <u>No Bid</u>
21.	36 IN minimum steel casing pipe under existing force mains, including furnishing and installing (water pipe not included).	50	LF	\$ <u>No Bid</u>	\$ <u>No Bid</u>
22.	Bid hold monthly increase amount after 120 days, up to 365 days.	1	MO	\$ <u>No Bid</u>	\$ <u>No Bid</u>
23.	Allowance for geotechnical and concrete material testing services according to Section 01075.	1	LS	\$5,000	\$5,000
24.	Allowance for permits according to Section 01075.	1	LS	\$5,000	\$5,000
25.	Allowance for Security per Specification Section 01075.	1	LS	\$7,500	\$7,500

COMPUTED TOTAL ALTERNATIVE BID NO. 3

HDPE PIPE VERSUS DI PIPE, PHASE 2 (ITEMS 1 THROUGH 25):

No Bid Dollars \$ No Bid  
 (Words) (Numbers)

HDPE Pricing was more than double the price of DIP.

- 6.01 Bidder agrees that the Work will be substantially complete within 335 calendar days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and will be completed and ready for final payment in accordance with Paragraph 14.07.B of the General Conditions within 365 calendar days after the date when the Contract Times commence to run.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the Contract Times.

## ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security in the form of a Bid Bond;
  - B. Evidence of authority to do business in the state of the Project, or a written covenant to obtain such license within the time for acceptance of Bids;
  - C. Contractor's License No. see attached, or evidence of Bidder's ability to obtain a State Contractor's License and a covenant by Bidder to obtain said license within the time for acceptance of Bids.
  - D. Information describing the proposed alternative equipment and/or materials.

## ARTICLE 8 – DEFINED TERMS

- 8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

## ARTICLE 9 – BID SUBMITTAL

- 9.01 This Bid is submitted on February 28, 2012 by: **GARNEY COMPANIES, INC.**

**ARTICLE 6 – TIME OF COMPLETION**

- 6.01 Bidder agrees that the Work will be substantially complete within 335 calendar days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and will be completed and ready for final payment in accordance with Paragraph 14.07.B of the General Conditions within 365 calendar days after the date when the Contract Times commence to run.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the Contract Times.

**ARTICLE 7 – ATTACHMENTS TO THIS BID**

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security in the form of a Bid Bond;
  - B. Evidence of authority to do business in the state of the Project, or a written covenant to obtain such license within the time for acceptance of Bids;
  - C. Contractor's License No. See attached, or evidence of Bidder's ability to obtain a State Contractor's License and a covenant by Bidder to obtain said license within the time for acceptance of Bids.
  - D. Information describing the proposed alternative equipment and/or materials.

**ARTICLE 8 – DEFINED TERMS**

- 8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

**ARTICLE 9 – BID SUBMITTAL**

- 9.01 This Bid is submitted on February 28, 2012 by: **COARNEY COMPANIES, INC.**

**BID BOND**

KNOW ALL MEN BY THESE PRESENTS, that we Garney Companies, Inc.  
Western Surety Company 800/331-6053  
PO Box 5077, Sioux Falls, SD 57117-5077 and  
Liberty Mutual Insurance Company (BIDDER) 610/832-8240  
450 Plymouth Rd #400, Plymouth Meeting, PA 19462 as Principal and  
Sioux Falls SD & Plymouth Meeting, PA  
SD & PA respectively  
 State of \_\_\_\_\_, a corporation existing under the laws and the State of SD & MA, respectively

and authorized to transact business in the State of Kentucky, as Surety, are held and firmly

bound unto **Kentucky-American Water Company, 2300 Richmond Road, Lexington, KY 40502**, hereinafter called the Obligee, in the sum of

Ten (10%) Percent of Total Amount Bid \_\_\_\_\_ Dollars

(\$ 10% of total amount bid), lawful money of the United States of America, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the accompanying Bid dated February 28, 2012, for the Northern Division Connection US 127 Water Transmission Main and KY 607 Water Main Extension, Phase 1

NOW, THEREFORE, the condition of this Bond shall be such that if the Principal, upon due acceptance of said Bid and award of a Contract to him by the Obligee, bonds with good and sufficient surety as may be required by the Contract Documents, and furnishes the Obligee proper evidence of effectiveness of insurance coverage, respectively, within the time, in the forms and in the amounts, as appropriate, required by the Contract Documents, and enters into a Contract with the Obligee in accordance with the Contract Documents, then this Bond shall be void; otherwise, the Bond shall be and shall remain in full force and effect.

The Principal and the Surety hereby stipulate and agree that if the Principal fails to perform all conditions of this Bond, they will pay the sum of the Bond to the Obligee as fixed, liquidated damages.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its Bond shall be in no way impaired or affected by any extension of time within which the Obligee may accept such Bid; and said Surety does hereby waive notice of any such extension. It is the intention of the parties to be legally bound by this instrument.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals this 28 day of February, 2012, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned and representative, pursuant to authority of its governing.

ATTEST:

DATE February 28, 20 12

WITNESS:

Garney Copanies, Inc.

Name of Bidder, Corporation  
Firm or Individual

By

*[Signature]*  
**STEPHEN P. FORD**  
**VICE PRESIDENT**  
(Title)

*[Signature]*  
**STEPHEN M. McCANDLESS**  
**CORPORATE SECRETARY**

1333 NW Vivion Road

Kansas City ,MO 64118

Business Address of Bidder

~~ATTEST~~ Witness:

*[Signature]*  
Secretary

Western Surety Company and

Liberty Mutual Insurance Company  
Surety

*[Signature]*  
Attorney-In-Fact Linda L. Nutt

# Western Surety Company

## POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That WESTERN SURETY COMPANY, a South Dakota corporation, is a duly organized and existing corporation having its principal office in the City of Sioux Falls, and State of South Dakota, and that it does by virtue of the signature and seal herein affixed hereby make, constitute and appoint

**Linda L. Nutt**

of Kansas City, MO, its true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on its behalf bonds, undertakings and other obligatory instruments of similar nature

Surety Bond Number: Bid Bond  
Principal: Garney Companies, Inc.  
Obligee: Kentucky American Water Company  
Amount of Bond: See Bond Form

and to bind it thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of the corporation and all the acts of said Attorney, pursuant to the authority hereby given, are hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law printed on the reverse hereof, duly adopted, as indicated, by the shareholders of the corporation.

In Witness Whereof, WESTERN SURETY COMPANY has caused these presents to be signed by its Senior Vice President and its corporate seal to be hereto affixed on this 19th day of September, 2006



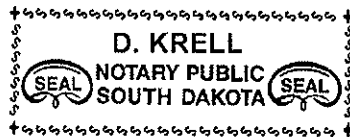
WESTERN SURETY COMPANY

Paul T. Bruflat  
Paul T. Bruflat, Senior Vice President

State of South Dakota }  
County of Minnehaha } ss

On this 19th day of September, 2006, before me personally came Paul T. Bruflat, to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is the Senior Vice President of WESTERN SURETY COMPANY described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed pursuant to authority given by the Board of Directors of said corporation and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said corporation.

My commission expires  
November 30, 2012



D. Krell  
D. Krell, Notary Public

### CERTIFICATE

I, L. Nelson, Assistant Secretary of WESTERN SURETY COMPANY do hereby certify that the Power of Attorney hereinabove set forth is still in force, and further certify that the By-Law of the corporation printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said corporation this 28th day of February, 2012.



WESTERN SURETY COMPANY

L. Nelson  
L. Nelson, Assistant Secretary

**Authorizing By-Law**

ADOPTED BY THE SHAREHOLDERS OF WESTERN SURETY COMPANY:

This Power of Attorney is made and executed pursuant to and by authority of the following By-Law duly adopted by the shareholders of the Company.

Section 7. All bonds, policies, undertakings, Powers of Attorney, or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, any Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or agents who shall have authority to issue bonds, policies, or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile.



This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated. Not valid for mortgage, note, loan, letter of credit, bank deposit, currency rate, interest rate or residual value guarantees. To confirm the validity of this Power of Attorney call 610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

LIBERTY MUTUAL INSURANCE COMPANY  
BOSTON, MASSACHUSETTS  
POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS:

That Liberty Mutual Insurance Company (the "Company"), a Massachusetts stock insurance company, pursuant to and by authority of the By-law and Authorization hereinafter set forth, does hereby name, constitute and appoint, Linda L. Nutt its true and lawful attorney-in-fact, with full power and authority hereby conferred to sign, execute and acknowledge, at any location within the United States, the following surety bond:

Principal Name: Garney Companies, Inc.

Obligee Name: Kentucky American Water Company

LMS Surety Bond Number: Bid Bond

Bond Amount: See Bond Form

That this power is made and executed pursuant to and by authority of the following By-law and Authorization:

ARTICLE XIII - Execution of Contracts: Section 5. Surety Bonds and Undertakings.

Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

By the following instrument the chairman or the president has authorized the officer or other official named therein to appoint attorneys-in-fact:

Pursuant to Article XIII, Section 5 of the By-laws, Garnet W. Elliott, Assistant Secretary of Liberty Mutual Insurance Company, is hereby authorized to appoint such attorneys-in-fact as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

That the By-law and the Authorization set forth above are true copies thereof and are now in full force and effect.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Company and the corporate seal of Liberty Mutual Insurance Company has been affixed thereto in Plymouth Meeting, Pennsylvania this 28<sup>th</sup> day of MARCH, 2009.

LIBERTY MUTUAL INSURANCE COMPANY



*Garnet W. Elliott*

By \_\_\_\_\_  
Garnet W. Elliott, Assistant Secretary

COMMONWEALTH OF PENNSYLVANIA ss  
COUNTY OF MONTGOMERY

On this 28<sup>th</sup> day of MARCH, 2009, before me, a Notary Public, personally came Garnet W. Elliott, to me known, and acknowledged that he is an Assistant Secretary of Liberty Mutual Insurance Company; that he knows the seal of said corporation; and that he executed the above Power of Attorney and affixed the corporate seal of Liberty Mutual Insurance Company thereto with the authority and at the direction of said corporation.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA  
Notarial Seal  
Teresa Pastella, Notary Public  
Plymouth Twp., Montgomery County  
My Commission Expires March 28, 2013

By Teresa Pastella  
Teresa Pastella, Notary Public

CERTIFICATE

I, the undersigned, Assistant Secretary of Liberty Mutual Insurance Company, do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy, is in full force and effect on the date of this certificate; and I do further certify that the officer or official who executed the said power of attorney is an Assistant Secretary specially authorized by the chairman or the president to appoint attorneys-in-fact as provided in Article XIII, Section 5 of the By-laws of Liberty Mutual Insurance Company.

This certificate and the above power of attorney may be signed by facsimile or mechanically reproduced signatures under and by authority of the following vote of the board of directors of Liberty Mutual Insurance Company at a meeting duly called and held on the 12th day of March, 1980.

VOTED that the facsimile or mechanically reproduced signature of any assistant secretary of the company, wherever appearing upon a certified copy of any power of attorney issued by the company in connection with surety bonds, shall be valid and binding upon the company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the said company, this 28th day of February, 2012.



By David M. Carey  
David M. Carey, Assistant Secretary

NOTE: This agreement must be properly executed and must accompany the Bid Bond as proposal security.

AGREEMENT OF SURETY

KNOW ALL MEN BY THESE PRESENTS, that we Western Surety Company and Liberty Mutual Insurance Company, as Surety, a corporation existing under the laws of the State of SD & MA, respectively, and authorized to transact business in the State of KY, hereby agree to execute, within the time limit specified in the Contract, the Bonds, in the forms and in the amounts required for the faithful performance and proper fulfillment of the Contract for Construction of \_\_\_\_\_, on behalf of Garney Companies, Inc., hereinafter called the Bidder, provided that the Notice of Award be delivered to the Bidder within the time period that Bids are subject to acceptance or within any extended period for which the Bidder agrees not to withdraw his bid; and the Surety further agrees that should the Surety, after notification of such award, omit or refuse to execute the required bonds, then the Surety shall pay to the Obligee the amount of the Bid Bond.

February 28, 2012

Date

Western Surety Company and Liberty Mutual Insurance Company, as Co-Sureties

Corporate Surety

*Linda L. Nutt*

(AFFIX CORPORATE SEAL)

Linda L. Nutt, Attorney-in-Fact

Title

**THOMAS MCGEE, L.C.  
820 MAIN ST., STE. 1700  
KANSAS CITY, MO 64106  
816/842/4800**

Business Address

# Western Surety Company

## POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That WESTERN SURETY COMPANY, a South Dakota corporation, is a duly organized and existing corporation having its principal office in the City of Sioux Falls, and State of South Dakota, and that it does by virtue of the signature and seal herein affixed hereby make, constitute and appoint

**Linda L. Nutt**

of Kansas City, MO, its true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on its behalf bonds, undertakings and other obligatory instruments of similar nature

Surety Bond Number: Bid Bond  
Principal: Garney Companies, Inc.  
Obligee: Kentucky American Water Company  
Amount of Bond: See Bond Form

and to bind it thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of the corporation and all the acts of said Attorney, pursuant to the authority hereby given, are hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law printed on the reverse hereof, duly adopted, as indicated, by the shareholders of the corporation.

In Witness Whereof, WESTERN SURETY COMPANY has caused these presents to be signed by its Senior Vice President and its corporate seal to be hereto affixed on this 19th day of September, 2006

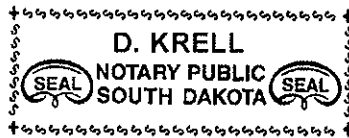


WESTERN SURETY COMPANY  
Paul T. Brufat  
Paul T. Brufat, Senior Vice President

State of South Dakota }  
County of Minnehaha } ss

On this 19th day of September, 2006, before me personally came Paul T. Brufat, to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is the Senior Vice President of WESTERN SURETY COMPANY described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed pursuant to authority given by the Board of Directors of said corporation and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said corporation.

My commission expires  
November 30, 2012



D. Krell  
D. Krell, Notary Public

### CERTIFICATE

I, L. Nelson, Assistant Secretary of WESTERN SURETY COMPANY do hereby certify that the Power of Attorney hereinabove set forth is still in force, and further certify that the By-Law of the corporation printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said corporation this 28th day of February, 2012



WESTERN SURETY COMPANY  
L. Nelson  
L. Nelson, Assistant Secretary

**Authorizing By-Law**

ADOPTED BY THE SHAREHOLDERS OF WESTERN SURETY COMPANY:

This Power of Attorney is made and executed pursuant to and by authority of the following By-Law duly adopted by the shareholders of the Company.

Section 7. All bonds, policies, undertakings, Powers of Attorney, or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, any Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or agents who shall have authority to issue bonds, policies, or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated. Not valid for mortgage, note, loan, letter of credit, bank deposit, currency rate, interest rate or residual value guarantees. To confirm the validity of this Power of Attorney call 610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

LIBERTY MUTUAL INSURANCE COMPANY  
BOSTON, MASSACHUSETTS  
POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS:

That Liberty Mutual Insurance Company (the "Company"), a Massachusetts stock insurance company, pursuant to and by authority of the By-law and Authorization hereinafter set forth, does hereby name, constitute and appoint, Linda L. Nutt its true and lawful attorney-in-fact, with full power and authority hereby conferred to sign, execute and acknowledge, at any location within the United States, the following surety bond:

Principal Name: Garney Companies, Inc.

Obligee Name: Kentucky American Water Company

LMS Surety Bond Number: Bid Bond

Bond Amount: See Bond Form

That this power is made and executed pursuant to and by authority of the following By-law and Authorization:

ARTICLE XIII - Execution of Contracts: Section 5. Surety Bonds and Undertakings.

Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

By the following instrument the chairman or the president has authorized the officer or other official named therein to appoint attorneys-in-fact:

Pursuant to Article XIII, Section 5 of the By-laws, Garnet W. Elliott, Assistant Secretary of Liberty Mutual Insurance Company, is hereby authorized to appoint such attorneys-in-fact as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

That the By-law and the Authorization set forth above are true copies thereof and are now in full force and effect.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Company and the corporate seal of Liberty Mutual Insurance Company has been affixed thereto in Plymouth Meeting, Pennsylvania this 28<sup>th</sup> day of MARCH, 2009.

LIBERTY MUTUAL INSURANCE COMPANY

*Garnet W. Elliott*

By \_\_\_\_\_  
Garnet W. Elliott, Assistant Secretary



COMMONWEALTH OF PENNSYLVANIA ss  
COUNTY OF MONTGOMERY

On this 28<sup>th</sup> day of MARCH, 2009, before me, a Notary Public, personally came Garnet W. Elliott, to me known, and acknowledged that he is an Assistant Secretary of Liberty Mutual Insurance Company; that he knows the seal of said corporation; and that he executed the above Power of Attorney and affixed the corporate seal of Liberty Mutual Insurance Company thereto with the authority and at the direction of said corporation.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA  
Notarial Seal  
Teresa Pastella, Notary Public  
Plymouth Twp., Montgomery County  
My Commission Expires March 28, 2013  
Member, Pennsylvania Association of Notaries

By Teresa Pastella  
Teresa Pastella, Notary Public

CERTIFICATE

I, the undersigned, Assistant Secretary of Liberty Mutual Insurance Company, do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy, is in full force and effect on the date of this certificate; and I do further certify that the officer or official who executed the said power of attorney is an Assistant Secretary specially authorized by the chairman or the president to appoint attorneys-in-fact as provided in Article XIII, Section 5 of the By-laws of Liberty Mutual Insurance Company.

This certificate and the above power of attorney may be signed by facsimile or mechanically reproduced signatures under and by authority of the following vote of the board of directors of Liberty Mutual Insurance Company at a meeting duly called and held on the 12th day of March, 1980.

VOTED that the facsimile or mechanically reproduced signature of any assistant secretary of the company, wherever appearing upon a certified copy of any power of attorney issued by the company in connection with surety bonds, shall be valid and binding upon the company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the said company, this 28th day of February, 2012.



By David M. Carey  
David M. Carey, Assistant Secretary

**BID BOND**

KNOW ALL MEN BY THESE PRESENTS, that we Garney Companies, Inc.

Liberty Mutual Insurance Company as Principal and Western Surety Company 800/331-6053  
450 Plymouth Rd #400, Plymouth Meeting, PA 19462 BIDDER) 610/832-8240 PO Box 5077, Sioux Falls, SD 57117-5077 and  
of the City of Sioux Falls SD & Plymouth Meeting, PA  
respectively

State of SD & PA respectively, a corporation existing under the laws and the State of SD & MA, respectively

and authorized to transact business in the State of Kentucky, as Surety, are held and firmly

bound unto Kentucky-American Water Company, 2300 Richmond Road, Lexington, KY 40502, hereinafter called the Obligee, in the sum of

Ten (10%) Percent of Total Amount Bid \_\_\_\_\_ Dollars

(\$ 10% of total amount bid), lawful money of the United States of America, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal has submitted the accompanying Bid dated February 28, 2012, for the US 127 and KY 22 Water Transmission Main, Phase 2

NOW, THEREFORE, the condition of this Bond shall be such that if the Principal, upon due acceptance of said Bid and award of a Contract to him by the Obligee, bonds with good and sufficient surety as may be required by the Contract Documents, and furnishes the Obligee proper evidence of effectiveness of insurance coverage, respectively, within the time, in the forms and in the amounts, as appropriate, required by the Contract Documents, and enters into a Contract with the Obligee in accordance with the Contract Documents, then this Bond shall be void; otherwise, the Bond shall be and shall remain in full force and effect.

The Principal and the Surety hereby stipulate and agree that if the Principal fails to perform all conditions of this Bond, they will pay the sum of the Bond to the Obligee as fixed, liquidated damages.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its Bond shall be in no way impaired or affected by any extension of time within which the Obligee may accept such Bid; and said Surety does hereby waive notice of any such extension. It is the intention of the parties to be legally bound by this instrument.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals this 28 day of February, 2012, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned and representative, pursuant to authority of its governing.

ATTEST:

DATE February 28, 20 12

WITNESS:

Carney Copanies, Inc.

Name of Bidder, Corporation  
Firm or Individual

By STEPHEN P. FORD  
**VICE PRESIDENT**

(Title)

1333 NW Vivion Road

Kansas City ,MO 64118

Business Address of Bidder

S. M. McCandless  
**STEPHEN M. McCANDLESS**  
**CORPORATE SECRETARY**

~~ATTEST~~ Witness:

M. A. Phil  
~~SECRETARY~~  
Secretary

Western Surety Company and

Liberty Mutual Insurance Company.  
Surety

Linda L. Nutt  
Attorney-in-Fact Linda L. Nutt

# Western Surety Company

## POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That WESTERN SURETY COMPANY, a South Dakota corporation, is a duly organized and existing corporation having its principal office in the City of Sioux Falls, and State of South Dakota, and that it does by virtue of the signature and seal herein affixed hereby make, constitute and appoint

**Linda L. Nutt**

of Kansas City, MO, its true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on its behalf bonds, undertakings and other obligatory instruments of similar nature

Surety Bond Number: Bid Bond  
Principal: Garney Companies, Inc.  
Obligee: Kentucky American Water Company  
Amount of Bond: See Bond Form

and to bind it thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of the corporation and all the acts of said Attorney, pursuant to the authority hereby given, are hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law printed on the reverse hereof, duly adopted, as indicated, by the shareholders of the corporation.

In Witness Whereof, WESTERN SURETY COMPANY has caused these presents to be signed by its Senior Vice President and its corporate seal to be hereto affixed on this 19th day of September, 2006

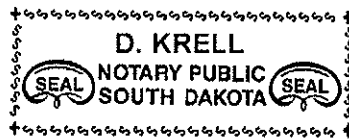


WESTERN SURETY COMPANY  
Paul T. Bruflat  
Paul T. Bruflat, Senior Vice President

State of South Dakota }  
County of Minnehaha } ss

On this 19th day of September, 2006, before me personally came Paul T. Bruflat, to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is the Senior Vice President of WESTERN SURETY COMPANY described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed pursuant to authority given by the Board of Directors of said corporation and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said corporation.

My commission expires  
November 30, 2012



D. Krell  
D. Krell, Notary Public

### CERTIFICATE

I, L. Nelson, Assistant Secretary of WESTERN SURETY COMPANY do hereby certify that the Power of Attorney hereinabove set forth is still in force, and further certify that the By-Law of the corporation printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said corporation this 28th day of February, 2012.



WESTERN SURETY COMPANY  
L. Nelson  
L. Nelson, Assistant Secretary



**Authorizing By-Law**

ADOPTED BY THE SHAREHOLDERS OF WESTERN SURETY COMPANY:

This Power of Attorney is made and executed pursuant to and by authority of the following By-Law duly adopted by the shareholders of the Company.

Section 7. All bonds, policies, undertakings, Powers of Attorney, or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, any Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or agents who shall have authority to issue bonds, policies, or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated. Not valid for mortgage, note, loan, letter of credit, bank deposit, currency rate, interest rate or residual value guarantees. To confirm the validity of this Power of Attorney call 610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

LIBERTY MUTUAL INSURANCE COMPANY  
BOSTON, MASSACHUSETTS  
POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS:

That Liberty Mutual Insurance Company (the "Company"), a Massachusetts stock insurance company, pursuant to and by authority of the By-law and Authorization hereinafter set forth, does hereby name, constitute and appoint, Linda L. Nutt its true and lawful attorney-in-fact, with full power and authority hereby conferred to sign, execute and acknowledge, at any location within the United States, the following surety bond:

Principal Name: Garney Companies, Inc.

Obligee Name: Kentucky American Water Company

LMS Surety Bond Number: Bid Bond

Bond Amount: See Bond Form

That this power is made and executed pursuant to and by authority of the following By-law and Authorization:

ARTICLE XIII - Execution of Contracts: Section 5. Surety Bonds and Undertakings.

Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

By the following instrument the chairman or the president has authorized the officer or other official named therein to appoint attorneys-in-fact:

Pursuant to Article XIII, Section 5 of the By-laws, Garnet W. Elliott, Assistant Secretary of Liberty Mutual Insurance Company, is hereby authorized to appoint such attorneys-in-fact as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

That the By-law and the Authorization set forth above are true copies thereof and are now in full force and effect.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Company and the corporate seal of Liberty Mutual Insurance Company has been affixed thereto in Plymouth Meeting, Pennsylvania this 28<sup>th</sup> day of MARCH, 2009.



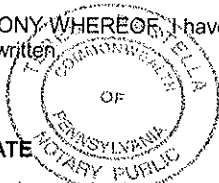
LIBERTY MUTUAL INSURANCE COMPANY

By Garnet W. Elliott  
Garnet W. Elliott, Assistant Secretary

COMMONWEALTH OF PENNSYLVANIA ss  
COUNTY OF MONTGOMERY

On this 28<sup>th</sup> day of MARCH, 2009, before me, a Notary Public, personally came Garnet W. Elliott, to me known, and acknowledged that he is an Assistant Secretary of Liberty Mutual Insurance Company; that he knows the seal of said corporation; and that he executed the above Power of Attorney and affixed the corporate seal of Liberty Mutual Insurance Company thereto with the authority and at the direction of said corporation.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA  
Notarial Seal  
Teresa Pastella, Notary Public  
Plymouth Twp., Montgomery County  
My Commission Expires March 28, 2013  
Member, Pennsylvania Association of Notaries

By Teresa Pastella  
Teresa Pastella, Notary Public

I, the undersigned, Assistant Secretary of Liberty Mutual Insurance Company, do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy, is in full force and effect on the date of this certificate; and I do further certify that the officer or official who executed the said power of attorney is an Assistant Secretary specially authorized by the chairman or the president to appoint attorneys-in-fact as provided in Article XIII, Section 5 of the By-laws of Liberty Mutual Insurance Company.

This certificate and the above power of attorney may be signed by facsimile or mechanically reproduced signatures under and by authority of the following vote of the board of directors of Liberty Mutual Insurance Company at a meeting duly called and held on the 12th day of March, 1980.

VOTED that the facsimile or mechanically reproduced signature of any assistant secretary of the company, wherever appearing upon a certified copy of any power of attorney issued by the company in connection with surety bonds, shall be valid and binding upon the company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the said company, this 28<sup>th</sup> day of February, 2012.



By David M. Carey  
David M. Carey, Assistant Secretary

NOTE: This agreement must be properly executed and must accompany the Bid Bond as proposal security.

AGREEMENT OF SURETY

KNOW ALL MEN BY THESE PRESENTS, that we Western Surety Company and Liberty Mutual Insurance Company, as Surety, a corporation existing under the laws of the State of SD & MA, respectively, and authorized to transact business in the State of KY, hereby agree to execute, within the time limit specified in the Contract, the Bonds, in the forms and in the amounts required for the faithful performance and proper fulfillment of the Contract for Construction of Garney Companies, Inc., on behalf of Garney Companies, Inc., hereinafter called the Bidder, provided that the Notice of Award be delivered to the Bidder within the time period that Bids are subject to acceptance or within any extended period for which the Bidder agrees not to withdraw his bid; and the Surety further agrees that should the Surety, after notification of such award, omit or refuse to execute the required bonds, then the Surety shall pay to the Obligee the amount of the Bid Bond.

February 28, 2012

Date

Western Surety Company and Liberty Mutual Insurance Company, as Co-Sureties

Corporate Surety

*Linda L. Nutt*

(AFFIX CORPORATE SEAL)

Linda L. Nutt, Attorney-in-Fact

Title

**THOMAS MCGEE, L.C.  
920 MAIN ST., STE. 1700  
KANSAS CITY, MO 64108  
816/842/4800**

Business Address

# Western Surety Company

## POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That WESTERN SURETY COMPANY, a South Dakota corporation, is a duly organized and existing corporation having its principal office in the City of Sioux Falls, and State of South Dakota, and that it does by virtue of the signature and seal herein affixed hereby make, constitute and appoint

**Linda L. Nutt**

of Kansas City, MO, its true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on its behalf bonds, undertakings and other obligatory instruments of similar nature

Surety Bond Number: Bid Bond  
Principal: Garney Companies, Inc.  
Obligee: Kentucky American Water Company  
Amount of Bond: See Bond Form

and to bind it thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of the corporation and all the acts of said Attorney, pursuant to the authority hereby given, are hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law printed on the reverse hereof, duly adopted, as indicated, by the shareholders of the corporation.

In Witness Whereof, WESTERN SURETY COMPANY has caused these presents to be signed by its Senior Vice President and its corporate seal to be hereto affixed on this 19th day of September, 2006

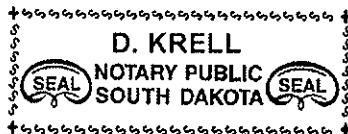


WESTERN SURETY COMPANY  
Paul T. Bruflat  
Paul T. Bruflat, Senior Vice President

State of South Dakota }  
County of Minnehaha } ss

On this 19th day of September, 2006, before me personally came Paul T. Bruflat, to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is the Senior Vice President of WESTERN SURETY COMPANY described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed pursuant to authority given by the Board of Directors of said corporation and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said corporation.

My commission expires  
November 30, 2012



D. Krell  
D. Krell, Notary Public

### CERTIFICATE

I, L. Nelson, Assistant Secretary of WESTERN SURETY COMPANY do hereby certify that the Power of Attorney hereinabove set forth is still in force, and further certify that the By-Law of the corporation printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said corporation this 28th day of February, 2012.



WESTERN SURETY COMPANY  
L. Nelson  
L. Nelson, Assistant Secretary

**Authorizing By-Law**

ADOPTED BY THE SHAREHOLDERS OF WESTERN SURETY COMPANY:

This Power of Attorney is made and executed pursuant to and by authority of the following By-Law duly adopted by the shareholders of the Company.

Section 7. All bonds, policies, undertakings, Powers of Attorney, or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, any Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or agents who shall have authority to issue bonds, policies, or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated. Not valid for mortgage, note, loan, letter of credit, bank deposit, currency rate, interest rate or residual value guarantees. To confirm the validity of this Power of Attorney call 610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

LIBERTY MUTUAL INSURANCE COMPANY  
BOSTON, MASSACHUSETTS  
POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS:

That Liberty Mutual Insurance Company (the "Company"), a Massachusetts stock insurance company, pursuant to and by authority of the By-law and Authorization hereinafter set forth, does hereby name, constitute and appoint, Linda L. Nutt its true and lawful attorney-in-fact, with full power and authority hereby conferred to sign, execute and acknowledge, at any location within the United States, the following surety bond:

Principal Name: Garney Companies, Inc.

Obligee Name: Kentucky American Water Company

LMS Surety Bond Number: Bid Bond

Bond Amount: See Bond Form

That this power is made and executed pursuant to and by authority of the following By-law and Authorization:

ARTICLE XIII - Execution of Contracts: Section 5. Surety Bonds and Undertakings.

Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

By the following instrument the chairman or the president has authorized the officer or other official named therein to appoint attorneys-in-fact:

Pursuant to Article XIII, Section 5 of the By-laws, Garnet W. Elliott, Assistant Secretary of Liberty Mutual Insurance Company, is hereby authorized to appoint such attorneys-in-fact as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

That the By-law and the Authorization set forth above are true copies thereof and are now in full force and effect.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Company and the corporate seal of Liberty Mutual Insurance Company has been affixed thereto in Plymouth Meeting, Pennsylvania this 28<sup>th</sup> day of MARCH, 2009.

LIBERTY MUTUAL INSURANCE COMPANY



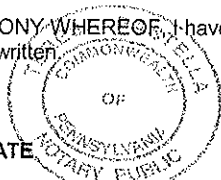
*Garnet W. Elliott*

By \_\_\_\_\_  
Garnet W. Elliott, Assistant Secretary

COMMONWEALTH OF PENNSYLVANIA ss  
COUNTY OF MONTGOMERY

On this 28<sup>th</sup> day of MARCH, 2009, before me, a Notary Public, personally came Garnet W. Elliott, to me known, and acknowledged that he is an Assistant Secretary of Liberty Mutual Insurance Company; that he knows the seal of said corporation; and that he executed the above Power of Attorney and affixed the corporate seal of Liberty Mutual Insurance Company thereto with the authority and at the direction of said corporation.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA  
Notarial Seal  
Teresa Pastella, Notary Public  
Plymouth Twp., Montgomery County  
My Commission Expires March 28, 2013  
Member, Pennsylvania Association of Notaries

By *Teresa Pastella*  
Teresa Pastella, Notary Public

CERTIFICATE

I, the undersigned, Assistant Secretary of Liberty Mutual Insurance Company, do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy, is in full force and effect on the date of this certificate; and I do further certify that the officer or official who executed the said power of attorney is an Assistant Secretary specially authorized by the chairman or the president to appoint attorneys-in-fact as provided in Article XIII, Section 5 of the By-laws of Liberty Mutual Insurance Company.

This certificate and the above power of attorney may be signed by facsimile or mechanically reproduced signatures under and by authority of the following vote of the board of directors of Liberty Mutual Insurance Company at a meeting duly called and held on the 12th day of March, 1980.

VOTED that the facsimile or mechanically reproduced signature of any assistant secretary of the company, wherever appearing upon a certified copy of any power of attorney issued by the company in connection with surety bonds, shall be valid and binding upon the company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the said company, this 28<sup>th</sup> day of February, 2012.



By *David M. Carey*  
David M. Carey, Assistant Secretary



ADVANCING WATER

**CERTIFIED COPY OF RESOLUTION**

OF

**BOARD OF DIRECTORS**

OF

**GARNEY COMPANIES, INC.**

*The undersigned, Stephen M. McCandless hereby certifies that he is the duly elected and qualified Secretary of the Garney Companies, Inc. a Missouri Corporation (the "Company"), and that as Secretary, he maintains the records and the corporate seal of the Company. The undersigned further certifies that the following is a true and correct copy of the resolutions adopted by the unanimous consent of the members of the Board of Directors of the Company on the 4th day of March, 2010 and that such resolutions are now in full force and effect:*

**RESOLVED:** *That Stephen P. Ford is hereby recognized as the Vice President of the Corporation to serve until the next annual meeting of the Directors and authorized and instructed to execute and deliver on behalf of the Corporation and its name, contracts, offers and bids pertaining to contracting and construction work to be performed by the Company.*

**IN WITNESS WHEREOF,** *the undersigned has hereby affixed his name as Secretary and caused the corporate seal of the Company to be affixed hereto this 28th day of February 2012.*

A handwritten signature in cursive script, appearing to read "S. M. McCandless", is written over a horizontal line.

Stephen M. McCandless, Corporate Secretary

**Commonwealth of Kentucky**  
**Elaine N. Walker, Secretary of State**

Elaine N. Walker  
Secretary of State  
P. O. Box 718  
Frankfort, KY 40602-0718  
(502) 564-3490  
<http://www.sos.ky.gov>

**Certificate of Authorization**

Authentication number: 110338

Visit <http://apps.sos.ky.gov/business/obdb/certvalidate.aspx> to authenticate this certificate.

I, Elaine N. Walker, Secretary of State of the Commonwealth of Kentucky, do hereby certify that according to the records in the Office of the Secretary of State,

**GARNEY COMPANIES, INC.**

, a corporation organized under the laws of the state of Missouri, is authorized to transact business in the Commonwealth of Kentucky, and received the authority to transact business in Kentucky on August 27, 1979.

I further certify that all fees and penalties owed to the Secretary of State have been paid; that an application for certificate of withdrawal has not been filed; and that the most recent annual report required by KRS 271B.16-220 has been delivered to the Secretary of State.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Official Seal at Frankfort, Kentucky, this 24<sup>th</sup> day of February, 2011, in the 219<sup>th</sup> year of the Commonwealth.



*Elaine N. Walker*

Elaine N. Walker  
Secretary of State  
Commonwealth of Kentucky  
110338/0118634



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

---

**Witness: Lance Williams**

71. Describe the basis for the sizing of the proposed water transmission main. State all assumptions, show all calculations, and provide all work papers used to determine the main size.

**Response:**

A number of factors were taken into consideration, including:

- Maintain flushing velocity > 2.5 ft/s.
- Provide minimum of 30 psi under peak demand conditions.
- Minimize pressure loss from pipe friction, thereby, reducing pumping requirements.
- The placement of the new tank and booster station also influenced the basis for the transmission main size. In order to maximize the use of the pressure provided by KRS II pump station, the new tank and booster station were located at as high elevation as possible.

For additional documentation on the calculations of the transmission main size, refer to the response to Commission Staff's Data Request No. 8.

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

---

**Witness: Lance Williams**

72. For each water storage tank that Kentucky-American proposes to construct:
- a. Describe the need for the storage tank.
  - b. Describe the basis for its size. State all assumptions, show all calculations, and provide all work papers used to determine the main size.
  - c. Describe how Kentucky-American determined its location.

**Response:**

Elevated Storage Tank No. 1 (300,000 gallon tank near Monterey)

- a) The storage tank will allow for more efficient operation of the booster station and provide storage capacity for the Northern Division in response to a system outage and to help supplement peak demand periods.
- b) The storage tank will provide 3 hours of useable storage at a flow rate of 2 MGD (3 hours at 2 MGD = 250,000 gallons).
- c) The tank is located at the nearest highest elevation needed to maximize the use of the hydraulic grade line from the KRS II discharge and also to minimize the height of the tank. Besides taking into account the ground elevation, other factors considered were:
  - Access to the site
  - Land availability
  - Surrounding site conditions

Elevated Storage Tank No. 2 (600,000 gallon Owenton Tank)

- a) This storage tank, in addition to Tank No. 1, will provide the storage capacity necessary to allow the existing Fairgrounds Tank to be taken out of service for maintenance while maintaining service to customers and also to build redundancy in the Northern Division. The useable storage volume in the Northern Division will increase to 1MG, which is adequate to support the average day demand.
- b) The storage tank will provide 3 hours of useable storage at a flow rate of 3,500 gpm. The overflow elevation of the storage tank will match the overflow elevation of the existing New Columbus Tank located in the southeastern part of the county, thus, providing reliable pressures to service the New Columbus area of the Northern Division.

For additional documentation concerning calculations of the proposed size, refer to the response given on Commission Staff's Data Request No. 8.

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

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- c) The tank is located at the nearest highest elevation to minimize the height of the tank. Besides taking into account the ground elevation, other factors considered were:
- Access to the site
  - Land availability
  - Surrounding site conditions

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

---

**Witness: Lance Williams**

73. Refer to “Engineering Feasibility Study Report for Supplying Kentucky American Water’s Northern District Distribution System” at 6.
- a. State the capacity of the “new elevated storage tank” that is required to “address reliability and operation inefficiencies with the existing Fairgrounds Tank.”
  - b. State whether the proposed 600,000 gallon water storage tank that is part of the Northern Division Connection Project is the same facility as the “New Storage Tank.”
  - c. Explain how the “New Storage Tank” will improve reliability in the Owenton area.
  - d. State the expected location of the “New Storage Tank.”

**Response:**

- a) The capacity of the proposed elevated storage tank is 1 MG.
- b) No, the 600,000 gallon water storage tank that is part of the Northern Division Connection Project is not the same facility as the “New Storage Tank.” This storage tank was sized in conjunction with the Northern Division Connection Project.
- c) Currently, the Fairgrounds Tank is in need of maintenance, but cannot be taken out of service. The New Storage Tank would stabilize pressure in the Northern Division when the Fairgrounds Tank is out of service. The New Storage Tank would also reinforce the New Columbus area of the Northern Division and, thus, would enable reliable pressure to be provided to this area.
- d) The expected location of the New Storage Tank would likely be the same location as the proposed 600,000 gallon water storage tank.

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

---

**Witness: Lance Williams**

74. Refer to "Engineering Feasibility Study Report for Supplying Kentucky American Water's Northern District Distribution System" at 5-6.
- a. State whether all the capital improvement projects identified in Section IV-B must be performed simultaneously. Explain.
  - b. State whether Kentucky-American has considered whether system reliability can be improved by performing only some of the capital improvement projects listed in Section IV-B.

**Response:**

- a) KAW does not anticipate that all of the identified capital improvement projects will occur simultaneously. KAW does, however, anticipate that all of the projects will be completed over a 2-year period to take advantage of economies of scale and to drive efficiencies into the total project. The particulars of the sequencing of the construction projects during this 2-year period will be determined during design.
- b) Each individual project will address reliability within its particular process. The reliability, however, of the entire system will not be sufficiently improved until each identified project is complete. This is due to the existing single treatment process train where a disruption in any single process directly impacts the entire system.

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

---

**Witness: Lance Williams**

75.

- a. State whether Kentucky-American has conducted or commissioned any studies to evaluate the Owenton Water Treatment Plant in terms of enhanced distribution system storage and increased water purchases from neighboring water systems.
- b.
  - (1) If yes, provide a copy of such studies.
  - (2) If no, explain why not.

**Response:**

- a) KAW has examined the possibility of increasing or commencing water purchases from neighboring water systems. These systems include Carroll County Water District #1, Gallatin County Water District, Georgetown Municipal Water and Sewer Service, and Bullock Pen Water District. All of these systems have limited infrastructure in place at the existing or potential connection points to the Northern Division system. Significant infrastructure improvements would be necessary on both sides of the connection point before even considering relying on purchase agreements through these systems to serve the Northern Division. Below are additional concerns for the potential connections:
  - Bullock Pen: The Bullock Pen WTP only has a 1 MG design capacity and the Bullock Pen Water District is expected to need an additional water source by 2020. See the attached WRIS System Data Report.
  - Georgetown Municipal Water & Sewer Service: The system utilizes an underground aquifer as its source water and relies on purchase agreements to supply approximately one-third of its annual usage. See the attached WRIS System Data Report.
  - Carroll County Water District #1: The system only has a 1.06 MG design capacity and the system is in need of distribution system upgrades. See attached WRIS System Data Report.
- b)
  - (1) Please see response to part a).
  - (2) Not applicable.

DOW Permit ID: **KY0410047**  
 DOW Permit Type: **DRINKING WATER (PWSID)**  
 DOW Permit Name: **Bullock Pen Water District**  
 WRIS System Name: **Bullock Pen Water District**

[Link: EPA SDWIS Report](#)  
[Link: DOW SDWIS Report](#)

System Type: **Community**      Water Source Type: **Surface Water**  
 ADD ID: **NKADD**      Primary County: **Grant**      Dow Field Office: **Florence**  
 Permit Dates: Issued: **01.01.1973**      Expired:      Inactivated:

**SYSTEM CONTACT INFORMATION**

Contact: **William Catlett**  
 Title: **Superintendant**  
 Address Line 1: **PO Box 188**  
 Address Line 2:  
 City **Crittenden**      State: **KY**      Zip: **41030**  
 Phone: **859-428-2112**      EMail: [bullockpen@fuse.net](mailto:bullockpen@fuse.net)  
 Data Source: **KENTUCKY INFRASTRUCTURE AUTHORITY**

Date Last Modified: **03.28.2012**

**OWNER ENTITY INFORMATION**

Entity Type: **Water District (KRS 74)**      PSC Group ID: **19200**  
 Entity Name: **Bullock Pen Water District**  
 Web URL:  
 Office EMail: [bullockpen@fuse.net](mailto:bullockpen@fuse.net)  
 Office Phone: **859-428-2112**      Toll Free:      Fax: **859-428-1293**  
 Mail Address Line 1: **PO Box 188**      Phys Address Line 1:  
 Mail Address Line 2:      Phys Address Line 2:  
 Mail City, State Zip: **Crittenden, KY 41030**      Phys City, State Zip:  
 Contact: **Bobby Burgess**      Manager: **Bobby Burgess**  
 Contact Title:      Manager Title:  
 Contact EMail: [bullockpen@fuse.net](mailto:bullockpen@fuse.net)      Manager EMail: [bullockpen@fuse.net](mailto:bullockpen@fuse.net)  
 Contact Phone: **859-428-2112**      Manager Phone: **859-428-2112**  
 Contact Cell:      Manager Cell:

Authorized Official: **Bobby Burgess**  
 Auth. Official Title:  
 Auth. Official EMail: [bullockpen@fuse.net](mailto:bullockpen@fuse.net)  
 Auth. Official Phone: **859-428-2112**      Auth. Official Cell:  
 Data Source: **KENTUCKY INFRASTRUCTURE AUTHORITY**

Date Last Modified: **01.05.2011**

**DEMOGRAPHIC INFORMATION**

Counties Directly Served: **6**  
 Directly Serviceable Population: **19,544**  
 Indirectly Serviceable Population:  
 Total Serviceable Population: **19,544**

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

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

System Respondent

ADD WMP

Date

**FISCAL ATTRIBUTES**

Date Established: **01.01.1957**

Employees: **15**

Does this system:

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

- (a) Produce Water? **Yes**
- (b) Have wholesale customers? **No**
- (c) Purchase water? **Yes**

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

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

Comments:

Date Last Modified: 03.20.2012

Providers that sell water to this system:

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

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



DOW Permit ID: **KY0410047**

[Link: EPA SDWIS Report](#)

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

[Link: DOW SDWIS Report](#)

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

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

System Type: **Community**

Water Source Type: **Surface Water**

ADD ID: **NKADD**

Primary County: **Grant**

Dow Field Office: **Florence**

Permit Dates: Issued: **01.01.1973**

Expired:

Inactivated:

**SYSTEM PLANNING**

**Water Treatment Plants:**

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

**Operational Statistics:**

Total Annual Vol. Produced (MG):

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

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

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

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

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

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

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

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

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

Total Customers: **7,104**

Flushing, Maintenance and Fire Protection Usage (MG):

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

Projected water supply inadequacies through 2020 during normal operating conditions:

**Bullock pen water district will need additional water source**

Projected water supply inadequacies through 2020 during drought operating conditions:

**Conservative may be needed especially in the summer**

Comments:

Date Last Modified: 03.28.2012

**WMP Site Visit - Survey Information:**

Site Visit / Survey Date: **03.20.2012**

Survey Administrator: **Jeff Burt**

Principal Respondent: **Billy Catlett**

Other Respondent(s):

Comments:

Date Last Modified: 03.28.2012

DOW Permit ID: **KY0410047**

[Link: EPA SDWIS Report](#)

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

[Link: DOW SDWIS Report](#)

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

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

System Type: **Community**

Water Source Type: **Surface Water**

ADD ID: **NKADD**

Primary County: **Grant**

Dow Field Office: **Florence**

Permit Dates: Issued: **01.01.1973**

Expired:

Inactivated:

### SYSTEM MAINTENANCE

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

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

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

The management of this system participates in regular training activities.

System operator(s) participate in regular training activities.

This system has periodic service outages.

Cause(s):

This system has periodic pump failures.

Cause(s):

This system has periodic line breaks.

The following components are associated with periodic line breaks:

Typical line size: **6.00**

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

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

Other cause(s): **No**

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

This system has localized problems.

The following components are associated with localized problems:

Problem location(s):

Problem diameter(s):

Problem pressure(s):

Problem cause(s):

Other problem characteristics:

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

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

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

Maintenance notes for this system:

Date Last Modified: **09.29.2004**

The following projects are associated with this system:

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

# WRIS System Data Report

## KY1050157 - Georgetown Municipal Water & Sewer Service

DOW Permit ID: **KY1050157**

[Link: EPA SDWIS Report](#)

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

[Link: DOW SDWIS Report](#)

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

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

System Type: **Community**

Water Source Type: **Surface Water**

ADD ID: **BGADD**

Primary County: **Scott**

Dow Field Office: **Frankfort**

Permit Dates: Issued: **01.01.1973**

Expired:

Inactivated:

### SYSTEM CONTACT INFORMATION

Contact: **Robert Wilhite**

Title: **General Manager**

Address Line 1: **PO Box 640**

Address Line 2:

City: **Georgetown**

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

Phone: **502-863-7816**

EMail: [rwilhite@gmwss.com](mailto:rwilhite@gmwss.com)

Data Source: **KENTUCKY INFRASTRUCTURE AUTHORITY**

Date Last Modified: **03.28.2012**

### OWNER ENTITY INFORMATION

Entity Type: **City / Municipal Utility**

PSC Group ID:

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

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

Office EMail: [bjenkins@gmwss.com](mailto:bjenkins@gmwss.com)

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

Toll Free:

Fax: **502-863-3575**

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

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

Mail Address Line 2:

Phys Address Line 2:

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

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

Contact: **Robert Wilhite**

Manager: **daryl mulder**

Contact Title: **General Manager**

Manager Title: **engineering tech**

Contact EMail: [rwilhite@gmwss.com](mailto:rwilhite@gmwss.com)

Manager EMail: [dmulder@gmwss.com](mailto:dmulder@gmwss.com)

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

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

Contact Cell:

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

Authorized Official: **everett Varney**

Auth. Official Title: **Mayor**

Auth. Official EMail:

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

Auth. Official Cell:

Data Source: **KENTUCKY INFRASTRUCTURE AUTHORITY**

Date Last Modified: **03.28.2012**

### DEMOGRAPHIC INFORMATION

Counties Directly Served: **5**

Directly Serviceable Population: **33,052**

Indirectly Serviceable Population:

Total Serviceable Population: **33,052**

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

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

# WRIS System Data Report

## KY1050157 - Georgetown Municipal Water & Sewer Service

System Respondent

ADD WMP

Date

### FISCAL ATTRIBUTES

Date Established: **01.01.1973**

Employees: **50**

Does this system:

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

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

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

Comments:

Date Last Modified: **03.28.2012**

Providers that sell water to this system:

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

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

# WRIS System Data Report

## KY1050157 - Georgetown Municipal Water & Sewer Service

DOW Permit ID: **KY1050157**

[Link: EPA SDWIS Report](#)

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

[Link: DOW SDWIS Report](#)

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

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

System Type: **Community**

Water Source Type: **Surface Water**

ADD ID: **BGADD**

Primary County: **Scott**

Dow Field Office: **Frankfort**

Permit Dates: Issued: **01.01.1973**

Expired:

Inactivated:

### SYSTEM PLANNING

**Water Treatment Plants:**

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

**Operational Statistics:**

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

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

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

Estimated Annual Water Loss: **28.8%**

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

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

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

Institutional Customers: Institutional Usage (MG):

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

Other Customers: Other Cust. Usage (MG):

Total Customers: **12,138**

Flushing, Maintenance and Fire Protection Usage (MG):

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

Projected water supply inadequacies through 2020 during normal operating conditions:

Projected water supply inadequacies through 2020 during drought operating conditions:

Comments:

Date Last Modified: 03.28.2012

**WMP Site Visit - Survey Information:**

Site Visit / Survey Date: **03.28.2012**

Survey Administrator: **Samantha**

Principal Respondent: **Robert Wilhite**

Other Respondent(s):

Comments:

Date Last Modified: 03.28.2012

# WRIS System Data Report

## KY1050157 - Georgetown Municipal Water & Sewer Service

DOW Permit ID: **KY1050157**

[Link: EPA SDWIS Report](#)

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

[Link: DOW SDWIS Report](#)

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

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

System Type: **Community**

Water Source Type: **Surface Water**

ADD ID: **BGADD**

Primary County: **Scott**

Dow Field Office: **Frankfort**

Permit Dates: Issued: **01.01.1973**

Expired:

Inactivated:

### SYSTEM MAINTENANCE

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

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

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

The management of this system participates in regular training activities.

System operator(s) participate in regular training activities.

This system has periodic service outages.

Cause(s):

This system has periodic pump failures.

Cause(s):

This system has periodic line breaks.

The following components are associated with periodic line breaks:

Typical line size:

Typical line location(s):

Typical cause(s):

Other cause(s):

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

This system has localized problems.

The following components are associated with localized problems:

Problem location(s):

Problem diameter(s):

Problem pressure(s);

Problem cause(s):

Other problem characteristics:

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

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

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

Maintenance notes for this system:

Date Last Modified: **03.28.2012**

## WRIS System Data Report

### KY1050157 - Georgetown Municipal Water & Sewer Service

The following projects are associated with this system:

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



# WRIS System Data Report

## KY0210066 - Carroll County Water District #1

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

### SYSTEM CONTACT INFORMATION

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

Date Last Modified: **06.03.2010**

### OWNER ENTITY INFORMATION

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

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

Date Last Modified: **01.05.2011**

### DEMOGRAPHIC INFORMATION

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

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

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

System Respondent

ADD WMP

Date

# WRIS System Data Report

## KY0210066 - Carroll County Water District #1

DOW Permit ID: **KY0210066**

[Link: EPA SDWIS Report](#)

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

[Link: DOW SDWIS Report](#)

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

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

System Type: **Community**

Water Source Type: **Groundwater**

ADD ID: **NKADD**

Primary County: **Carroll**

Dow Field Office: **Florence**

Permit Dates: Issued: **02.01.1973**

Expired:

Inactivated:

### FISCAL ATTRIBUTES

Date Established: **01.09.1961**

Employees: **8**

Does this system:

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

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

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

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

Comments:

Date Last Modified: 12.03.2008

Providers that sell water to this system:

Seller DOW Permit ID	Seller Name	Water Type	Ann. Vol. (MG)	Cost		Interconnects		
				Raw	Fin	Perm	Seas	Emer
<a href="#">KY0210067</a>	Carrollton Utilities	F			\$7.88	0	0	1
<b>Totals and Averages</b>					<b>\$7.88</b>	<b>0</b>	<b>0</b>	<b>1</b>

Providers that purchase water from this system:

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

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

# WRIS System Data Report

## KY0210066 - Carroll County Water District #1

DOW Permit ID: **KY0210066**

[Link: EPA SDWIS Report](#)

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

[Link: DOW SDWIS Report](#)

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

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

System Type: **Community**

Water Source Type: **Groundwater**

ADD ID: **NKADD**

Primary County: **Carroll**

Dow Field Office: **Florence**

Permit Dates: Issued: **02.01.1973**

Expired:

Inactivated:

### SYSTEM PLANNING

#### Water Treatment Plants:

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

#### Operational Statistics:

Total Annual Vol. Produced (MG):

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

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

Estimated Annual Water Loss: %

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

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

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

Institutional Customers: Institutional Usage (MG):

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

Other Customers: Other Cust. Usage (MG):

Total Customers: **3,065**

Flushing, Maintenance and Fire Protection Usage (MG):

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

Projected water supply inadequacies through 2020 during normal operating conditions:

**Lack of distribution system and need for distribution system upgrades**

Projected water supply inadequacies through 2020 during drought operating conditions:

**Not substantially affected by drought**

Comments:

Date Last Modified: 12.03.2008

#### WMP Site Visit - Survey Information:

Site Visit / Survey Date: **03.14.2012**

Survey Administrator: **Jeff Burt**

Principal Respondent: **Jim Smith**

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

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

Date Last Modified: 03.28.2012

# WRIS System Data Report

## KY0210066 - Carroll County Water District #1

DOW Permit ID: **KY0210066**

[Link: EPA SDWIS Report](#)

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

[Link: DOW SDWIS Report](#)

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

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

System Type: **Community**

Water Source Type: **Groundwater**

ADD ID: **NKADD**

Primary County: **Carroll**

Dow Field Office: **Florence**

Permit Dates: Issued: **02.01.1973**

Expired:

Inactivated:

### SYSTEM MAINTENANCE

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

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

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

The management of this system participates in regular training activities.

System operator(s) participate in regular training activities.

This system has periodic service outages.

Cause(s):

This system has periodic pump failures.

Cause(s):

This system has periodic line breaks.

The following components are associated with periodic line breaks:

Typical line size: **4.00**

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

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

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

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

This system has localized problems.

The following components are associated with localized problems:

Problem location(s):

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

Problem pressure(s):

Problem cause(s):

Other problem characteristics:

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

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

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

Maintenance notes for this system:

Date Last Modified: **09.27.2010**

## WRIS System Data Report

### KY0210066 - Carroll County Water District #1

The following projects are associated with this system:

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

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

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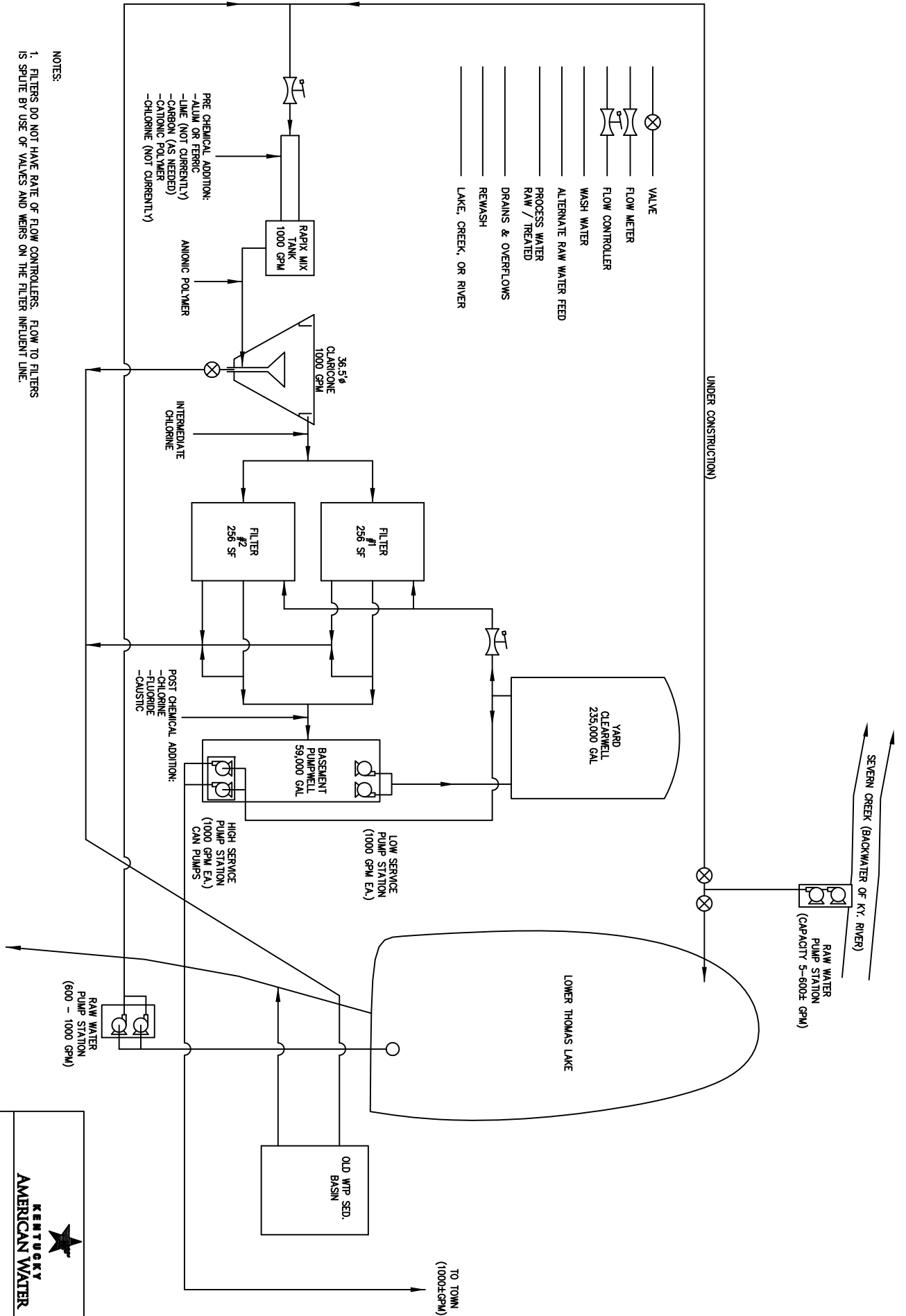
**Witness: Lance Williams**

76.

- a. Provide a schematic of the Owenton Water Treatment Plant's pretreatment sedimentation unit.
- b. Regarding the Owenton Water Treatment Plant's existing pretreatment sedimentation, state:
  - (1) The volume of the basin in cubic feet;
  - (2) The level of sediment in the basin; and,
  - (3) The corresponding volumetric percentage in the basin.
- c. Explain why a second basin is needed.
- d. State whether Kentucky-American would have to purchase additional land to construct a second basin.
- e. Provide a breakdown of the estimated project cost of \$1.2 million for "Pretreatment Reliability Improvements." State all assumptions, show all calculations and provide all work papers used to derive the estimated cost.

**Response:**

- a) See attached.
- b)
  - (1) The volume of the Claricone is 71,769 gallons.
  - (2) Any sediment that accumulates at the bottom of the Claricone is drained out daily.
  - (3) There is no corresponding volumetric percentage.
- c) A second basin is needed to provide redundancy. This will allow operations staff to continue treating water while taking existing equipment out of service for maintenance. Current design standards require that at least two units be provided.
- d) KAW should not need to purchase additional land to construct a second basin.
- e) Please see the attached letter from Strand Associates Inc. dated April 4, 2012.



NOTES:  
 1. FILTERS DO NOT HAVE RATE OF FLOW CONTROLLERS. FLOW TO FILTERS IS SPURIE BY USE OF VALVES AND WEIRS ON THE FILTER INFLUENT LINE.

**KENTUCKY AMERICAN WATER**

OWENTON WATER DEPARTMENT

APPENDIX C  
 PROCESS SCHEMATIC

ENGINEERING DEPARTMENT

SCALE  
 N.T.S.  
 1" = 2000'

DRAWING SHEET  
 P-1  
 1 of 1

LEWINGTON KENTUCKY



April 4, 2012

Mr. Jason Hurt, P.E.  
Kentucky American Water  
2300 Richmond Road  
Lexington, KY 40502

Re: Owenton, Kentucky, Water Treatment Plant Improvements

Dear Jason,

This letter is in response to your request to provide preliminary capital costs for several Kentucky American Water (KAW) identified improvements to the Owenton intake and water treatment plant. The following is our understanding of the desired improvements.

1. Chemical Bulk Storage Improvements: These improvements were designed to bring chemical storage and feed facilities to American Water standards and improve delivery access by bulk chemical suppliers. The improvements include a new chemical feed building that houses bulk liquid chemicals, access road improvements, and a chlorine scrubber. Strand Associates, Inc.<sup>®</sup> provided preliminary design for these improvements in 2008.
2. Chemical Pretreatment Reliability Improvements: These improvements are intended to address a lack of redundancy in the existing sedimentation- related process. KAW desires a full capacity process to provide treatment when the existing process is taken out of service. The improvements include horizontal shaft flocculators and a sedimentation process utilizing plate settlers in a package metal tank.
3. Sludge Handling Improvements: These improvements are intended to improve treatment of solids residuals from sedimentation and filtration processes. KAW desires a gravity sludge thickener and belt filter press.
4. Filter Redundancy Improvements: These improvements are intended to improve redundancy of the filtration process. KAW desires two additional filters of equal size as the existing filters.
5. Emergency Power Reliability Improvements: These improvements are intended to provide backup power to both treatment plant and intake facilities. KAW desires a standby generator at both locations.
6. SCADA Improvements: These improvements are intended to improve the efficiency of operations and update antiquated equipment controls. KAW desires supervisory control and data acquisition (SCADA) graphics and controls of various existing and new equipment.
7. Raw Water Intake Improvements: These improvements are intended to provide a more reliable source water supply than the existing intake on Severn Creek. KAW desires a new intake on

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Mr. Jason Hurt, P.E.  
Kentucky American Water  
Page 2  
April 4, 2012

the Kentucky River near its existing intake on Severn Creek. New raw water pumps, permanganate feed system, and security improvements are also included.

8. New Storage Tank: These improvements are intended to stabilize system pressures and meet KAW's need for additional usable storage. It will also allow for the Fairgrounds tank to be taken out of service for required maintenance. KAW desires the tank to be a new 1-million-gallon elevated storage tank.

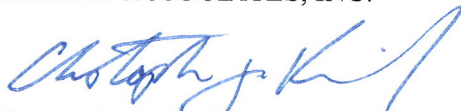
The following table provides a preliminary opinion of probable cost in second quarter 2012 dollars. Each improvement includes construction and engineering costs and contingency.

Capital Improvement Description	Cost
Chemical Bulk Storage Improvements	\$2,100,000
Pretreatment Reliability Improvements	\$1,200,000
Sludge Handling Improvements	\$1,800,000
Filter Reliability Improvements	\$1,700,000
Emergency Power Reliability Improvements	\$600,000
SCADA Improvements	\$300,000
Raw Water Intake Improvements	\$1,400,000
New Storage Tank	\$2,300,000
<b>Total</b>	<b>\$11,400,000</b>

Where possible, several improvement costs were based on recent projects of similar size. However, several other costs included published cost curves based on similarly sized treatment capacity. The intake improvement costs were based primarily on the City of Owenton's budgeted cost of the project as developed by MSE Inc. and reflected in 2012 dollars utilizing Engineering News Record's construction indices. The chemical bulk feed and intake improvements had some level of detailed design associated with them. Total capital costs could change significantly as the projects are further defined and KAW's preferences evolve.

Sincerely,

STRAND ASSOCIATES, INC.®



Christopher J. Keil, P.E.

c: Lance Williams, Kentucky American Water

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

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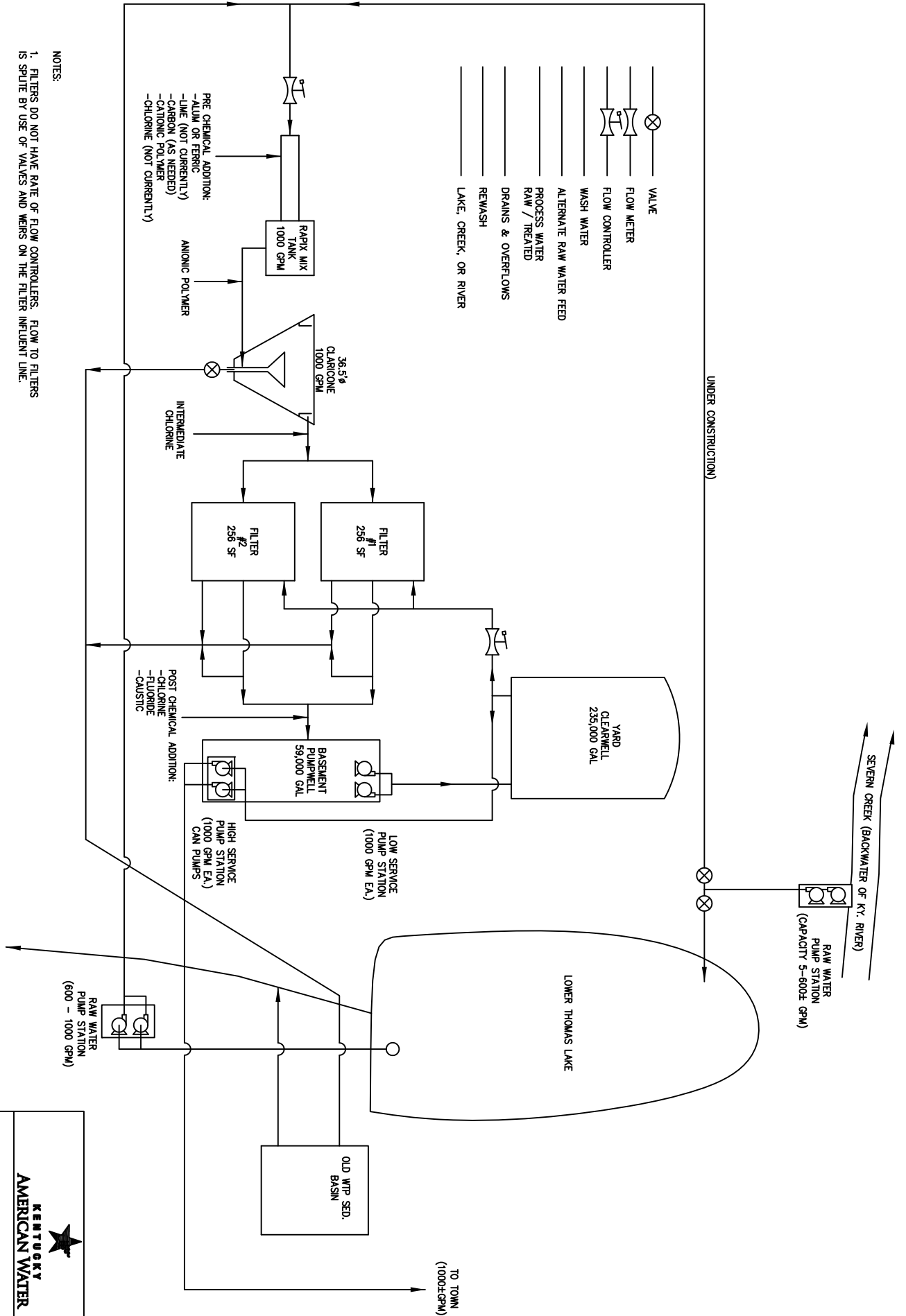
**Witness:**      **Lance E. Williams, PE**

77.

- a. Provide a schematic of the Owenton Water Treatment Plant's existing filter.
- b. State the existing filter rate in gallons per minute per square foot.
- c. Explain why a second filter is needed.
- d. Provide the dimensions and location of the new filter unit.
- e. Provide a breakdown of the estimated project cost of \$1.2 million for "Filter Reliability Improvements." State all assumptions, show all calculations and provide all work papers used to derive the estimated cost.


**Response:**

- a) See the attached Owenton Water Treatment Plant Schematic.
- b) 4 gpm per square foot with one filter in service and one in backwash at 1,000 gpm.
- c) The additional filters are needed to provide reliability. Both of the existing filters are required for the complete operation of the plant and this prevents KAW from performing extended maintenance on either filter. In addition, the existing sand filters are shallow and have limited capabilities to remove turbidity, which puts the entire system at risk for not meeting water quality standards.
- d) The new units may have a filter box area of 16 feet x 16 feet each. The filters may be located within a building extension on the north side of the structure.
- e) See the attached letter from Strand Associates Inc. dated April 4, 2012.



- ⊗ VALVE
- FLOW METER
- ⊗ FLOW CONTROLLER
- WASH WATER
- ALTERNATE RAW WATER FEED
- PROCESS WATER RAW / TREATED
- DRAINS & OVERFLOWS
- REMWASH
- LAKE, CREEK, OR RIVER

NOTES:  
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**KENTUCKY  
AMERICAN WATER**

OWENTON WATER DEPARTMENT  
 APPENDIX C  
 PROCESS SCHEMATIC

SCALE N.T.S. MAX 2000	ENGINEERING DEPARTMENT LEWINGTON	DRAWING P-1 SHEET 1 of 1
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April 4, 2012

Mr. Jason Hurt, P.E.  
Kentucky American Water  
2300 Richmond Road  
Lexington, KY 40502

Re: Owenton, Kentucky, Water Treatment Plant Improvements

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Mr. Jason Hurt, P.E.  
Kentucky American Water  
Page 2  
April 4, 2012

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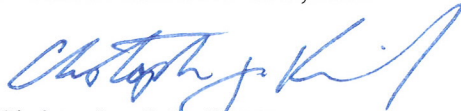
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Sincerely,

STRAND ASSOCIATES, INC.®



Christopher J. Keil, P.E.

c: Lance Williams, Kentucky American Water

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

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**Witness: Lance Williams**

78. Refer to "Engineering Feasibility Study Report for Supplying Kentucky American Water's Northern District Distribution System" at 5-6.
- a. Describe the improvements that are included in the "SCADA Improvements."
  - b. Identify the increased efficiencies that will result from the "SCADA Improvements."
  - c. Describe the effect of the "SCADA Improvements on the number of Owenton Water Treatment Plant employees.

**Response:**

- a) The improvements include the installation of remote terminal units at the treatment plant to allow for automated control of the plant, booster stations, and tank sites in the Northern Division and SCADA programming to accommodate the automated controls.
- b) These improvements will allow the operations staff to respond quickly to events that may occur in the distribution system and treatment plant, which will lessen, or even negate, the impact to the customers.
- c) There is no anticipated impact on the number of Owenton Water Treatment Plant employees with this project.



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

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**Witness: Linda Bridwell**

79.

- a. State whether Kentucky-American intends to recover the cost of the proposed facilities through general rates.
- b. State whether Kentucky-American has considered recovering the costs of the proposed facilities through a surcharge on Northern Division customers. If no, explain why not.
- c. Refer to the Direct Testimony of Lance E. Williams at 7. State whether Kentucky-American has discussed with the city of Owenton the possibility of a surcharge on Northern Division customers to recover the cost of the proposed facilities.

**Response:**

- a. Yes.
- b. No, because KAW has a single tariff for each rate classification for its Central Division and Northern Division customers. Therefore, all costs for capital construction and operations are distributed equally to all customers. Since December 2010, the customers in the Northern Division have been charged under a tariff that includes the construction and operation of KRS II. Use of a single tariff was encouraged by the Commission in previous proceedings and has been an appropriate way to utilize economies of scale to the benefit of all customers. Because of the benefits that have begun inuring to customers through economies of scale, it is presently inappropriate to pursue a surcharge on Northern Division customers.
- c. No.