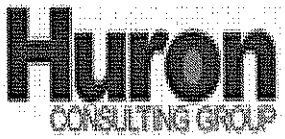

Management and Process Audit of
Martin County Water District

For the
Kentucky Public Service Commission

Management Audit Action Plans

June 14, 2007

Barrington-Wellesley Group, Inc.

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Management Audit Action Plans

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter II**
- **Recommendation Number -- 1**
- **Priority – A**

II. Recommendation Statement

1. Through a combination of revenue increases and cost reductions, increase water provisioning process resources. (Reference Final Report Findings 5 and 9)
   - Increase rates above the RD Grant rate increase in process. (See Chapter V)
   - Consider selling unused property such as the old Tug Fork raw water intake site and the old Route 40 pump station site.
   - Prioritize water loss reductions (see below) to qualify for PSC rate increases and petition the PSC for interim relief from the water loss requirement if necessary.
   - Install paid tap requests in a timely manner. The District will begin collecting monthly payments sooner.
   - Support bill collection turn-offs and theft investigations in a timely manner to increase bill collections.
   - Reduce electricity, chemicals and leak repair costs by reducing water losses (see below).
   - Further reduce electricity costs by:
     - Adding additional capacitor banks on pumps as economically justified.
     - Exploring the possibility of time of day off peak rates and do as much required pumping as possible in lower rate periods.
     - Considering natural gas powered pump replacements for electric pumps if the total cost is lower.
   - Fill the vacant distribution supervisor position and add one four person distribution crew to reduce the work backlog and implement the water loss reduction program, damage prevention program, watershed management program and preventive maintenance program recommended below.
   - Add a fifth water treatment plant operator to reduce overtime and provide a resource for preventive maintenance and record keeping assistance.

- Add an additional back hoe or excavator and two trucks and trailers appropriate to haul the additional equipment.
- Add additional facilities, vehicles, equipment, materials, and supplies as necessary to make the distribution crews as efficient as possible. A service center with a garage for minor maintenance, warehouse, meeting/training rooms, computer access and offices would be ideal.

III. Background/Findings

Revenue is not adequate to support necessary water provisioning process work. Increased revenue is required to support specific increases in distribution resources. Relevant portions of the findings from the Chapter II of the Final Report are shown below.

5. There is a large backlog of distribution work. (Final Report page II-11)
   - There were approximately 50 tap requests not yet completed as of November 14, 2006; tap fees had been collected for 13 of these tap requests.
   - There were 246 work orders not yet completed for leak repairs, meter sets, meter rereads, meter pulls, low pressure, meter reads in, meter reads out, tap relocates, and similar distribution work.
   - Main leaks are prioritized for repair over other work. However, failing to reduce the backlog of work orders has allowed service leaks to continue un-repaired for a period of time and revenue from new and delinquent customers to be delayed.

9. Adequate resources – labor, materials and equipment – are not available for the water provisioning process. (Final Report page II-12)
   - Water provisioning process costs are low. The total operating expenses for MCWD in 2006 were $1,032,404. The following table shows expense trends for the District. Accounting classification changes and reduction in treated water are responsible for the differences in individual accounts from 2005 to 2006.

Exhibit II-8
MCWD Expense Trends

Expense Account	2006	2005	2004	2003
Source of Supply & Pumping – Operation	$74,968	$170,763	$125,523	$109,583
Source of Supply & Pumping – Maintenance	13,376	7,666	59,109	121,394
Water Treatment – Operation	354,259	311,889	210,193	109,403
Water Treatment – Maintenance	909	5,587	57,767	110,060
Transmission & Distribution – Operation	179,285	181,178	178,055	116,989
Transmission & Distribution – Maintenance	179,666	163,936	170,269	184,625
Customer Accounts	96,434	98,489	120,020	120,437
Administrative & General	133,507	120,771	117,131	120,969
Total	1,032,404	1,060,279	1,038,067	993,460
Customers at Year End	3,506	3,411	3,434	3,376
Expenses per Customer	294	311	302	294

Source: Annual reports to the Commission and BWG calculations

- The largest expense categories in 2006 were:
  - Salaries, wages, pension and benefits for employees - $534,426
  - Purchased power - $179,697
  - Chemicals - $51,187
  - These three categories accounted for 74 percent of the total operating expenses
- Unit costs for providing water in 2006 are shown in Exhibit II-9.

Exhibit II-9
2006 Unit Operating Costs
(With No Administrative and General Overhead Costs Applied)

Cost Area	Total Cost	Thousand Gallons Produced	Cost per Thousand Gallons Produced
Supply and Treatment	$443,512	595,314	$.745
		Thousand Gallons Produced and Purchased (Distributed)	**Cost per Thousand Gallons Distributed**
Transmission and Distribution	$358,951	601,335	$.597
	Total MCWD Operating Expense	**Thousand Gallons of Water Sold**	**Cost per Thousand Gallons Sold**

Cost Area	Total Cost	Thousand Gallons Produced	Cost per Thousand Gallons Produced
Total Cost for All Functions	$1,032,404	271,046	$3.81
			Cost per Thousand Gallons Distributed
			$1.72

Sources: MCWD Annual Reports and BWG calculations

- Total inventory for plant materials and supplies at the end of 2006 was only $17,529. A treatment and distribution operation the scale of MCWD requires a larger inventory of materials and supplies for efficient operations.
- There are only four full-time water treatment plant operators and two on-call part-time operators. A seven by 24 hour operation requires a minimum of five full-time operators to cover 21 shifts per week and have spare capacity for vacations, illness, training and other absences.
- There are only five distribution employees. The sixth distribution employee, the supervisor, recently became the fourth treatment plant operator and was not replaced in distribution. One of the distribution employees is largely occupied by sampling and other duties and is normally unavailable for main, service and meter work. Many jobs require a crew of four or more because of difficult traffic management conditions. With vacations and other absences, this often results in having a single crew doing one job at a time each day.
- The distribution crew does not have a trailer for its only backhoe and, even if there was a trailer, there is no vehicle capable of towing the backhoe and trailer. This results in highly inefficient and dangerous driving of the backhoe from job to job.
- The distribution crew does not have an assembly area or proper facilities for garaging equipment and storage of materials and supplies.

IV. Expected Improvement/Improvement Timeline

One year for adding the necessary revenue, hiring and beginning training for the new personnel, and adding the recommended equipment and materials. Two years to add the recommended service center.

V. Cost/Benefit Analysis and Support

Cost Analysis

- 2006 supply, treatment, transmission and distribution costs were $802,463. This amount is estimated to increase by $500,000 for the five additional employees (the distribution supervisor is in the 2006 amounts) and additional operations and maintenance expense for equipment and materials.

- The new service center and additional equipment is estimated to cost approximately $500,000.

Benefit Analysis

- Sale of unused property is estimated to net $50,000.
- Reduced backlog of customer related work orders and more timely taps, turnoffs, and theft investigations supporting increased revenue sooner and reduced bad debt write offs and water thefts estimated at $25,000 per year savings.
- Reduced leaks through prompt response to leak calls will contribute to the water loss savings quantified in II-2 below.
- The benefits of the water loss reduction, preventive maintenance program, upgraded leak detection and repair program, damage prevention program, and watershed pollution control program are covered in the respective management audit action plans.
- Further reduction of electricity costs due to pump capacitor banks or a switch to natural gas pumping would have to be economically justified.
- The potential for implementing time of day rates must be investigated for feasibility.

Cost/Benefit Summary

Category	One Time	Annual Recurring
Cost	$500,000	$500,000
Benefits	$50,000	$25,000

Other Costs or Benefits

- The above costs represent the bulk of the costs for Recommendations II-2, 3, 4, and 5 as well. The additional personnel, equipment and facilities will provide the resources necessary for the water loss reduction, preventive maintenance, upgraded leak detection and repair, damage prevention and watershed pollution control programs.

VI. Utility Response

Recommended Action

_____ Approved ___x__ Approved with Exception _____ Rejected

- The sale of surplus property needs additional investigation as to the disposal procedure. Tug River raw water intake should be renovated and be used as back-up for the present system.

VII. Implementation Steps

Step 1: Increase rates above the RD Grant rate in process.

- Response: Board approval has been granted to request assistance from the Public Service Commission. Letter sent to the Public Service Commission for assistance on May 22, 2007

- Person Responsible: Board and General Manager. Completion date will be determined by the PSC.

Step 2: Consider selling unused property such as the old Tug Fork raw water intake site and the old Route 40 pump station site.

- Response: The old Tug Fork raw water intake site needs to be evaluated for possible renovation to be used as a back-up to the New Raw Water Intake. The other unused property such as the old Route 40 Pump Station and the old Wolf Creek Tank site needs to be evaluated for liability purposes and a value applied to each site by the Board. This should be completed by July 2007.

- Person Responsible: Board and General Manager.

Step 3: Prioritize water loss reductions to qualify for PSC rate increases and petition the PSC for interim relief from the water loss requirement if necessary.

- Response: The District has a plan in effect at present. A bid package, for In-Line Master Meters is being prepared as of May 22, 2007. After the Master Meters has been installed, the meter books will be realigned to correspond with the Master Meters and monitoring of the usage and meters will be conducted each month to determine where the water loss is occurring. This will be an ongoing process.

- Person Responsible: Board and General Manager.

Step 4: Install paid tap requests in a timely manner.

- Response: The District's Policy is to collect the tap fee on the day the tap is completed. The Tariff states that if we collect the tap fee, we have 72 hours to complete the work. That's the reason we collect the day we install. When funds become available to hire additional help the process will be completed in a timely manner.

- Person Responsible: General Manager

Step 5: Support bill collection turn-offs and theft investigations in a timely manner to increase bill collections.

- Response: As funds become available, the Board has authorized a position for an Accounts Receivable person. The primary duties will be to monitor Accounts Receivable, pull and install meters that were pulled for non-payment. Also, monitor theft of services. December 2007 will be the target date for this position.

- Person Responsible: General Manager, District, and Accounts Receivable person.

Step 6: Reduced electricity, chemicals and leak repair costs by reducing water losses.

- Response: Reference Step 3.

Step 7: Further reduce electricity costs

- Response: Due to the water storage capacity, a more thorough research of the further reduction of electricity costs will need to be completed. December 2008.

- Person Responsible: General Manager

Step 8: Fill the vacant distribution supervisor position and add one four person distribution crew to reduce the work backlog and implement the water loss reduction program, damage prevention program, watershed management program and preventive maintenance program recommended below.

- Response: Due to funding, July 2008 could be the projected date for implementing this process.

- Person Responsible: General Manager

Step 9: Add a fifth water treatment plant operator to reduce overtime and provide a resource for preventive maintenance and record keeping assistance.

- Response: As funds become available. One year.

- Person Responsible: General Manager.

Step 10: Add an additional back hoe or excavator and two trucks and trailers appropriate to haul the additional equipment.

- Response: As funds become available. Two years.

- Person Responsible: General Manager

Step 11: Add additional facilities, vehicles, equipment, materials, and supplies as necessary to make the distribution crews as efficient as possible. A service center

with a garage for minor maintenance, warehouse, meeting/training rooms, computer access and offices would be ideal.

- Response: As funds become available, and with the plant upgrade within the next Two years, this would be a great asset to the District.

- Person Responsible: Board and General Manager

VIII. Comments/Clarification of Intent

Consultant Name: David Vondle

Discussion

Step 1: Increase rates above the RD Grant rate in process.

Most of the recommended improvements are dependent on increased revenue. If it appears that the PSC rate increase process will take several months or years or may be unsuccessful, the District should consider a second expedited RD Grant related increase.

Step 2: Consider selling unused property such as the old Tug Fork raw water intake site and the old Route 40 pump station site.

Renovating the old Tug Fork intake and the associated transmission line to the reservoir should be included in the vulnerability assessment. Any renovation should be included in the capital planning process.

Step 4: Install paid tap requests in a timely manner.

The spirit of this recommendation is to work down the backlog to the point where as soon as the site is ready for the tap, the District can collect the tap fee and do the tap to provide responsive service and begin collecting the new revenue.

Step 5: Support bill collection turn-offs and theft investigations in a timely manner to increase bill collections.

The management audit did not recommend an Accounts Receivable person. This recommendation was intended for the distribution section. Again, the backlog should be worked down to the point that services can be turned off and theft investigations made no later than the day after the request is made.

Step 8: Fill the vacant distribution supervisor position and add one four person distribution crew to reduce the work backlog and implement the recommended distribution improvements.

The July 2008 schedule date is too late. Many distribution improvements are contingent on increased distribution work capacity. The supporting rate increase should be accelerated to allow quicker implementation of this recommendation.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- II**
- **Recommendation Number -- 2**
- **Priority – A**

II. Recommendation Statement

2. Develop a comprehensive water loss reduction program. (Reference Final Report Finding 4)
    - Improve the metering of produced and distributed water to include in-line master meters from the Clearwell tank, all subsidiary distribution tanks and on all major distribution mains. Make immediate use of the existing A system meter for determining the relative water loss between the A and B systems.
    - Use the information from additional metering of distributed water as compared to metered consumed water to identify water losses by main. Rank them from highest to lowest water loss. The Kentucky Rural Water Association Peer Review Report contains detailed recommendations for this process.
    - Prioritize, based on volumes of water lost, the mains and services for replacement or repair.
    - Prior to commencing repair and replacement work on each main, identify and resolve any water theft, metering or related problems.
    - Replace or repair all excessively leaking mains and services over a three year period.

III. Background/Findings

4. MCWD has significantly reduced water losses, but the system still incurs excessive water losses. (Final Report page II-8)
    - The following table shows water production, purchase and sale trends as reported to the PSC.

Exhibit II-6
Water Pumped and Sold
(Million Gallons)

	2006	2005	2004	2003
Water Purchased	6.02	6.34	14.67	19.39
Water Pumped	595.31	635.82	654.92	651.60
Total Purchased and Pumped	601.33	642.17	669.59	670.99
Total Water Sold to Customers	271.05	224.02	N/A	N/A
Water Purchased or Pumped but not Sold	330.28	418.15	N/A	N/A
Percent not Sold	55	65	N/A	N/A
Maximum Gallons Pumped in One Day	1.849	1.948	1.99	N/A

Source: Annual reports to the PSC and BWG calculations

- MCWD has recently developed a more detailed water loss analysis. The results of this analysis for 2006 are shown in the following table.

Exhibit II-7
MCWD 2006 Water Loss Analysis
(Million Gallons)

	2006
Treated Water into Clearwells - Water Produced	595.3
Purchased Water:	
Kermit Water Purchases	2.0
Mountain Water Purchases	4.0
Net Purchased Water	6.0
Total Produced and Purchased Treated Water	**601.3**
Water Supply to End Users	
Plant Use	21.1
Fire Department Use (estimated)	2.7
Prison Tank Use	34.6
Books 9-18 A Side Customer Metered Use	87.6
Books 1-8 B Side Customer Metered Use	148.8
Total Treated Water Consumption	**294.8**
Total Treated Water Loss	**306.5**
Treated Water Percentage Loss	51.0%
Total Prison Tank and Customer Metered Use	**271.0**

	2006
Water Sold as a Percentage of Water Produced	**45.1%**
Average Gallons per Day Produced or Purchased	1.65
Average Gallons per Day Sold	.74

Source: MCWD Water Loss Analysis and BWG calculations

- Water purchased or produced but not sold fell from 65 percent in 2005 to 55 percent in 2006.
- From 2005 to 2006, MCWD purchased and produced less water, but sold more. This is largely due to reducing subsidiary distribution tank overruns, fixing main and service leaks and replacing meters (to get more accurate usage numbers).
- MCWD has reduced its water purchases 69 percent from 2003 to 2006.
- The metering of produced and distributed water is not comprehensive. There is only one transmission and distribution meter. It is at the pump station serving the A system. It has not been read and therefore has not been used for determining the A system water losses versus the B system water losses. More in-line "master" meters are planned, but have not yet been funded or installed. Additional transmission and distribution master meters will allow the pinpointing of water losses by distribution main. This will allow precise prioritization of leak reduction efforts.
- By long standing, but informal, practice, MCWD supplies water to the five volunteer fire department stations in the county at no charge. This is in addition to the customary practice of not charging for fire hydrant water used in fighting fires and training. At present, water used by the fire department stations is not metered.
- Water losses due to leaks and other causes are not reasonable. The PSC standard is to have water losses of less than 15 percent. Water professionals familiar with Eastern Kentucky (see footnote 9) are in agreement that MCWD could meet this standard. Now that the overflowing tank problem has been fixed, the remaining water losses are likely attributable to:
  - Main and service leaks, with the consensus that service leaks are the larger problem. Main leaks are easier to visually identify and typically cause water pressure problems for customers on the main, triggering an investigation. Services, however, can have relatively small leaks that are not readily identifiable because they are near creeks or streams and can still provide basic water pressure. Service line leaks are estimated (see footnote 9) to cause 50 to 90 percent of the water losses.
  - Customer metering problems and water theft is the other potential category of water losses. This category can include: slow meters,

meters that were never installed on service lines, unauthorized taps, and meter bypasses.

- In a PSC rate case, recovery of the costs of water losses in excess of 15 percent, excluding water used by the utility in its own operations, is not allowed according to PSC 807 KAR 5:066 Sec. 6(3). (See footnote 3 on page I-7).
- By achieving a 15 percent water loss target, 2006 water treated and purchased would have been 346.8 million gallons, rather than the actual amount of 601.3 million gallons, a reduction of 254.5 million gallons, or about 42 percent. A 42 percent reduction in water production would result in estimated direct savings of $100,000 per year. These savings come from a reduced need for electricity for pumping and chemicals for treatment. Further indirect savings could be expected from fewer leak calls and repairs and less damage caused by leaks. An additional benefit would be that a larger proportion of the raw water would come from the Crum Reservoir watershed rather than the Tug Fork.

IV. Expected Improvement/Improvement Timeline

- Water losses should be less than 15 percent within three years.

V. Cost/Benefit Analysis and Support

Cost Analysis

- The additional employee personnel, equipment and facilities for this activity are covered in Recommendations II-1 and III-1
- Approximately $100,000 for the additional in-line master meters
- Additional contractor assistance to supplement employees to make repairs as prioritized are estimated at $250,000 per year for three years

Benefit Analysis

- Direct cost savings in electricity from pumping and chemicals from reduced water losses are estimated at $100,000 per year
- Indirect cost savings will result from fewer leak calls

Cost/Benefit Summary

Category	One Time	Annual Recurring
Cost	$100,000	$250,000 for three years
Benefits		$100,000

Other Costs or Benefits

- MCWD's ability to utilize the normal PSC rate making process will be enabled

- Public and industry perception of MCWD will improve
- The additional contracted leak repair crew is likely eligible for grant funding (See Recommendation III-2)

VI. Company Response

Recommended Action

____x_ Approved _____ Approved with Exception _____ Rejected

VII. Implementation Steps

Step 1: Improve the metering of produced and distributed water to include in-line master meters from the Clearwell tank, all subsidiary distribution tanks and on all major distribution mains. Make immediate use of the existing A system meter for determining the relative water loss between the A and B systems.

- Response: A plan was developed and presented to BSADD and DOW in February 2006 to install in-line Master Meters. (See p. 6, Step 3, Chapter II)

- Person Responsible: General Manager and O'Brien & Gere

Step 2: Use the information from additional metering of distributed water as compared to metered consumed water to identify water losses by main. Rank them from highest to lowest water loss. The Kentucky Rural Water Association Peer Review Report contains detailed recommendations for this process.

- Response: Same as Step l above.

- Person Responsible: General Manager

Step 3: Prioritize, based on volumes of water lost, the mains and services for replacement or repair.

- Response: After careful study of the plan implemented above, a prioritized list will be formulated and repairs will began. December 2007.

Step 4: Prior to commencing repair and replacement work on each main, identify and resolve any water theft, metering or related problems.

- Response: Begin a public awareness program and stress to present customers, meter readers, and employees, to report any person or persons receiving water illegally. This will be an ongoing process.

- Person Responsible: General Manager

Step 5: Replace or repair all excessively leaking mains and services over a three year period.

- Response: The District concurs will progress as funds become available.

- Person Responsible: General Manager

VIII. **Comments/Clarification of Intent**

- **Consultant Name: David Yondle**

- **Discussion**

Step 4: Prior to commencing repair and replacement work on each main, identify and resolve any water theft, metering or related problems.

The response is good and an ongoing program is needed. However, the intent of this recommendation was specific to projects to repair or replace sections of main. Prior to commencing main repair or replacement projects, a patrol and survey of the affected line should be made to identify theft, metering, meter placement, or other related problems. Identified problems should be resolved prior to commencing work or the solution should be included in the project.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- II**
- **Recommendation Number -- 3**
- **Priority – B**

II. Recommendation Statement

3. Implement a preventive maintenance program including upgrading the leak detection and repair program. (Reference Final Report Finding 8)
   - Establish records for each piece of equipment (such as pumps, injectors and valves) and pipe segment.
   - Track all maintenance performed on each piece of equipment and pipe segment.
   - Develop preventive maintenance routines for select facilities including routine flushing and valve maintenance. Implement manufacturers' recommended maintenance and AWWA guidelines as available.
   - Establish an on going leak detection and repair program following the completion of the water loss reduction program (see above).

III. Background/Findings

8. There is no organized preventive maintenance program. (Final Report page II-12)
   - MCWD operates on a largely "repair it when it breaks" mode.
   - MCWD lacks organized equipment (e.g., tanks, pumps, valves, and filters) records and main and service records and recommended preventive maintenance routines.
   - Most MCWD equipment and mains would benefit from an organized preventive maintenance program. A preventive maintenance program would result in fewer service interruptions and lower costs in the future.
   - The Kentucky Rural Water Association Peer Review Report specifically recommended a Water Storage Tank Operation and Maintenance Program with the American Water Works Association recommended practices.

IV. Expected Improvement/Improvement Timeline

- Implemented preventive maintenance program operational by the end of the second year

V. Cost/Benefit Analysis and Support

Cost Analysis

- Cost of a preventive maintenance computer system and hardware is estimated at $10,000
- Operation and maintenance costs for employees, equipment and facilities are included in Recommendations II-1 and III-1

Benefit Analysis

- Fewer water delivery outages due to equipment failures (e.g., pumps and transmission mains)
- Lower repair costs due to fewer repairs
- Fewer water quality problems due to equipment failures (e.g., clarifiers, filters, and chemical injectors) and fewer instances of water quality non-compliance
- Cost savings due to fewer equipment breakdowns (overtime, contractors, parts, etc.) and lost sales due to outages estimated at $50,000 per year

Cost/Benefit Summary

Category	One Time	Annual Recurring
Cost	$10,000	0
Benefits	0	$50,000

Other Costs or Benefits

- The preventive maintenance computer system and computer equipment is likely eligible for grant funding.

VI. Utility Response

Recommended Action

___x_ Approved _____ Approved with Exception _____ Rejected

VII. Implementation Steps

Step 1: Establish records for each piece of equipment (such as pumps, injectors, valves, pipe segments and vehicles.)

- Response: Using computer software records will be maintained to tract all maintenance and inspections of all equipment in the District. December 2007 will be the target date for complete implementation of this item.

- Person Responsible: General Manager

Step 2: Track all maintenance performed on each piece of equipment and pipe segment.

- Response: *Continuation of* Step 1.
- Person Responsible: Distribution Supervisor

Step 3: Develop preventive maintenance routines for select facilities including routine flushing and valve maintenance. Implement manufacturers' recommended maintenance and AWWA guidelines as available.

- Response: Check all O & M Manuals and develop a preventive maintenance program according to manufacturing guide lines. One year to complete this task.
- Person Responsible: General Manager

Step 4: Establish ongoing leak detection and repair program following the completion of the water loss reduction program.

- Response: Continue to monitor the in-line meters and the customer usage records to determine if the water loss is in an acceptable range or not. On going process
- Person Responsible: Office personnel and General Manager.

VIII. Comments/Clarification of Intent

- **Consultant Name: David Vondle**
- **Discussion**

Good management action plan.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- II**
- **Recommendation Number -- 4**
- **Priority – C**

II. Recommendation Statement

4. Implement a damage prevention program. (Reference Final Report Finding 6)
   - Join and actively participate in Kentucky's Call Before You Dig (one call) program.
   - Mark involved facilities in a timely manner as one call notices are received.
   - Develop and implement a damage prevention education program for State and County road crews and local civil contractors.
   - Bill perpetrators who damage marked District facilities.
   - Sue perpetrators who do not pay billed damages.

III. Background/Finding

6. MCWD does not have a damage prevention program. (Final Report page II-11)
   - MCWD does not participate in Kentucky's one call – call before you dig - program and has no excavator education program.
   - MCWD does not normally mark its facilities in advance of excavation by others.
   - MCWD experiences many third party damages from dig-ins to its facilities.
   - The District has little recourse to collect damages if the perpetrator used the one call system and the District did not mark its facilities in a timely manner as required by the one call system.
   - When MCWD does have recourse against a party responsible for damage to its facilities, MCWD has generally chosen not to bill the perpetrators and sue to collect damages because of a lack of resources.

IV. Expected Improvement/Improvement Timeline

- Damage prevention program operational by the end of the second year

V. Cost/Benefit Analysis and Support

Cost Analysis

- Employee, equipment and facilities costs included in Recommendations II-1 and III-1.

Benefit Analysis

- Fewer third-party damages to facilities
- Lower damage repair costs
- Increased damage repair cost collected
- Fewer water outages due to third-party damages
- Total cost savings estimated at $25,000 per year

Cost/Benefit Summary

Category	One Time	Annual Recurring
Cost	0	0
Benefits	0	$25,000

Other Costs or Benefits

- None

VI. Utility Response

Recommended Action

__x___ Approved _____ Approved with Exception _____ Rejected

VII. Implementation Steps

Step 1: Join and actively participate in Kentucky's Call Before You Dig (one call) program.

- Response: We are now actively participating in this program. However, the District needs to stress this program to our Local and State road crews. Publication, concerning this program, should be published in our local newspapers. Timeline: This is a continuous process.
- Person Responsible: General Manager and Distribution Supervisor.

Step 2: Mark involved facilities in a timely manner as one call notices are received.

- Response: Facilities are being marked in a timely manner. However, all contractors are not following procedures. This will take time to educate all concern parties.

- Person Responsible: General Manager and Distribution Supervisor

Step 3: Develop and implement a damage prevention education program for State and County road crews and local civil contractors.

- Response: (See Step 1 above) Copies of water line maps will be distributed accordingly.

- Person Responsible: General Manager

Step 4: Bill perpetrators who damage marked District facilities:

- Response: This process will be implemented immediately.

- Person Responsible: Office Manager

Step 5: Sue perpetrators who do not pay billed damages.

- Response: The County Attorney will assist the District in this matter. Timeline: Immediately.

- Person Responsible: General Manager

VIII. Comments/Clarification of Intent

- **Consultant Name: David Vondle**

- ***Discussion***

Good management action plan.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- II**
- **Recommendation Number -- 5**
- **Priority – C**

II. Recommendation Statement

5. Establish a watershed pollution control program. (Reference Final Report Finding 7)
    - Implement a Crum Reservoir pollution control program including annual septic tank system dye tests by the Health Department and mitigation of roadway runoff.
    - Regularly test creeks flowing into the reservoir and trace problems found back to the source.
    - Work cooperatively with other water districts to establish an upstream regional watershed management program for the Tug Fork including septic tank monitoring, solid waste disposal programs and tributary testing and remediation.

III. Background/Findings

7. There is no watershed management program. (Final Report page II-11)
    - All of MCWD's water supply is from surface water. Surface water is highly vulnerable to contamination.
    - As much as one-third of MCWD's water comes from water collected in the Crum Reservoir watershed.
    - The septic systems for the houses within the Crum Reservoir watershed are not tested for effectiveness.
    - There is no mitigation of runoff from the roads in the Crum Reservoir watershed.
    - Water in the Tug Fork is collected from a much larger watershed that includes several wastewater treatment plants.
    - There are many reports of raw sewage flowing into the Tug Fork watershed as well as possible pollution from improperly disposed solid waste. There is no enforcement of septic tank regulations other than for new installations and solid waste disposal facilities are limited.

- There is no regional watershed management program that addresses pollution control in the Tug Fork watershed prior to the MCWD intake. A comprehensive regional watershed management program would have to include the West Virginia side of the Tug Fork watershed as well as the Kentucky side.

IV. Expected Improvement/Improvement Timeline

- Implemented within one year

V. Cost/Benefit Analysis and Support

Cost Analysis

- Employee, equipment and facilities costs included in Recommendation II-1. Possible incidental costs for the Health Department to test septic tanks and mitigation of problems found.

Benefit Analysis

- Better quality raw water
- Easier treatment
- Fewer chances of water quality problems

Cost/Benefit Summary

Category	One Time	Annual Recurring
Cost	0	0
Benefits	0	0

Other Costs or Benefits

- Successful initiation of a regional watershed management program might lead to further regional cooperation
- Grant money may be available to low income homeowners to mitigate septic tank problems
- Grant money may be available to study regional watershed management options

VI. Utility Response

Recommended Action

__x___ Approved _____ Approved with Exception _____ Rejected

VII. Implementation Steps

Step 1: Implement a Crum Reservoir pollution control program including annual septic tank system dye test by the Health Department and mitigation of roadway runoff.

- Response: The District will work with the Health Department to design a plan that will help monitor and correct any problems associated with the pollution of Crum Reservoir. Timeline: December 2007.

- Person Responsible: General Manager

Step 2: Regularly test creeks flowing into the reservoir and trace problems found back to the source.

- Response: No creeks flow into Crum Reservoir.

Step 3: Work cooperatively with other water districts to establish an upstream regional watershed management program for the Tug Fork including septic tank monitoring, solid waste disposal programs and tributary testing and remediation.

- Response: The DOW monitors the Tug Fork River on a routine basis. Kermit Water Company and 911 Services keeps the District informed of any spills or other contaminants that would be harmful to the watershed. MCWD will initiate meetings with Kermit Water and Mountain Water to plan improvement for watershed protection. Timeline: This program is presently in effect.

VIII. Comments/Clarification of Intent

- **Consultant Name: David Vondle**

- **Discussion**

Step 2: Regularly test creeks flowing into the reservoir and trace problems back to the source.

Suggest patrolling the perimeter of the reservoir after a storm to identify and mark significant surface water runoffs into the reservoir. Then periodically test these sites after storms.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- II**
- **Recommendation Number -- 6**
- **Priority – C**

II. Recommendation Statement

6. Develop and implement a long-term plan to reduce the system's vulnerability to supply disruptions. (Reference Finding 2) Alternative to be considered include:
    - Expand the Crum Reservoir capacity by raising and repairing the dam and/or dredging the reservoir.
    - Install a Crum Reservoir bypass (pipe and valves).
    - Expand the Treatment Plant capacity (in process).
    - Install a second line to the Clearwell tank.
    - Expand the Clearwell tank capacity (in process).
    - Expand looping and valving of the transmission and distribution tanks.
    - Expand distribution tank capacities or add additional distribution tanks.
    - Expand the telemetry system to cover the Crum Reservoir, master meters and pressure control valves to provide early detection and resolution of problems.

III. Background/Findings

Raw water is taken from the Tug Fork of the Big Sandy River (Tug Fork) and is pumped approximately five miles up to the Crum Reservoir. The raw water intake is at 580 feet elevation and its pumping capacity is rated at 1400 gallons per minute (GPM). There is a single transmission line from the raw water intake to the Crum Reservoir. The Crum Reservoir water elevation ranges from 750 feet when full to 671 feet when empty. The raw water pumped into the Crum Reservoir is supplemented by precipitation falling within the Crum Reservoir watershed. The Crum Reservoir is an open impoundment reservoir behind a man made dam. It has a maximum cumulative storage capacity of 512 million gallons. The Crum Reservoir watershed contains approximately 10 homes and two roads.[1]

The following table shows water supply statistics for October 2006.

[1] The background information was collected through interviews with and documents provided by the General Manager and O'Brien & Gere, the District's engineering consultant.

Exhibit II-1
Water Supply for October 2006

Factor	Value
Water Pumped from the Tug Fork into the Crum Reservoir	32.679 million gallons
Rainfall	5.34 inches
Water into the Treatment Plant from the Crum Reservoir	50.225 million gallons
Percentage of Raw Water from the Tug River Assuming the Crum Reservoir Level Stayed the Same	65 percent

Sources: October 2006 Reports: Monthly Operation Report to the Kentucky Division of Water and Monitoring Results Submittal Forms to the Kentucky Department of Environmental Protection for the Tug River and Crum Reservoir

There has been no ongoing measurement of the distribution of raw water supplies between the Tug Fork and the reservoir watershed. Approximately 65 percent of the water transmitted from the Crum Reservoir to the Water Treatment Plant was from the Tug Fork and 35 percent was collected in the watershed in October 2006, assuming the level of the Crum reservoir remained unchanged.

Recent annual rainfall amounts, as measured at the Treatment Plant, are shown in the following table.

Exhibit II-2
Rainfall Trend

Year	Rainfall in Inches
2003	48.8
2004	49.8
2005	41.6
2006	46.9

Source: Rainfall measurements taken at the Water Treatment Plant by the plant operators.

There is a gravity feed system from Crum Reservoir to the Water Treatment Plant, which is at 620 feet, utilizing two transmission lines. Raw water from the Crum Reservoir is treated in the Water Treatment Plant using two up-flow clarifiers. Plant capacity is rated at 2 million gallons per day. Chemicals are added to settled and filtered water to meet water quality guidelines and the finished water is pumped up to the 300,000 gallon Clearwell Tank by two high lift pumps rated at 1400 GPM each through a single transmission line. The Clearwell Tank feeds the entire MCWD system, typically through transmission lines and supplemental pumping to subsidiary distribution tanks. MCWD has 15 subsidiary distribution tanks as follows:

Exhibit II-3
MCWD Subsidiary Distribution Tanks

Number	Tank	Size	Overflow Elevation
T1A	Buck Creek	150	991
T2A	Little Rock Castle	150	1080
T3A	292 South	100	1113
T4A	Big Elk	100	1080
T5A	Wolf Creek	100	819
T7B	Coldwater	150	853
T8B	Turkey	50	983
T9B	Inez (1)	500	860
T10B	Inez (2)	150	860
T11B	KY 40 W	200	1171
T12B	Calloway	100	1164
T13B	Middle Fork	260	942
T14B	Buffalo Horn	50	950
T15B	Big Sandy Airport	1040	1360
T16B	KY645	60	985

Source: MCWD Water System Map by O'Brien & Gere

To the extent practical, the distribution system is designed to use gravity feed from the subsidiary distribution tanks to the customers. However, many distribution mains require in-line pumping to reach some customers on the main. MCWD, like similar Kentucky water utilities, is required to provide a minimum of 30 pounds per square inch (PSI) pressure to each customer at the meter.

MCWD has twelve pumping stations, as follow:

Exhibit III-4
MCWD Pumping Stations

Number	Name	GPM	Elevation
P1A	KY 40 B	670	660
P2A	Big Elk	240	720
P3A	Bone Hollow	40	690
P4A	KY 292 South	130	680
P5B	Turkey	90	620

P6B	KY 40 W	420	680
P7B	Calloway	90	650
P8B	Middle Fork	245	650
P9B	KY 645	90	680
P10B	Peter Cave	130	700
P11B	Buffalo Horn	60	800
P12B	Davella Road	350	700

Source: MCWD Water System Map by O'Brien & Gere

MCWD originally developed as two distinct distribution systems that were later merged. Common terminology is to refer to the Warfield, Kentucky side as the "A" system and the Inez, Kentucky side as the "B" system. All water is treated on the B system and the A system is served by pumping treated water over a hill to the A side. The P1A pump station located at KY 40 B pumps water treated at the Water Treatment Plant to the A system.

MCWD has recently installed and initiated operation of a new telemetry system. The system monitors storage tank levels and allows remote operation of the pumps that feed them. Water Treatment Plant operators can refill tanks as needed without risk of overflowing them. The use of the telemetry system has virtually eliminated the previous problem of inadvertently overflowing tanks by leaving the pumps on too long.

The Crum Reservoir level is not telemetered or metered in any other way. Visual observations of the Crum Reservoir level are relayed to the Water Treatment Plant operators daily.

MCWD has approximately 174 miles of transmission and distribution mains ranging in size from 2 to 16 inches. The distribution mains serve approximately 3,500 customers. Typically, each customer is served from the main by a service line to a meter at the property line. MCWD estimates that it serves approximately 95 percent of the Martin County population. The remainder of the county's citizens is served by wells or other means.

MCWD is interconnected to three other systems:

- City of Kermit, West Virginia (interconnected to the A system in the far southeast end)
- City of Prestonsburg, Kentucky (interconnected to the B system in the far southwest end)
- Mountain Water District (interconnected to the A side in the far southern end)

MCWD is able to purchase water from or sell water to these interconnected systems. There are no formal agreements regarding sales and purchases and the systems operate on a "good neighbor" basis in cases of emergency. For example, at the time of this writing, the Mountain Water District was serving approximately ninety MCWD customers from its interconnection because the MCWD main to the customers was broken.

MCWD has an agreement with Prestonsburg to jointly serve the prison near the Big Sandy Airport. Both MCWD and Prestonsburg supply water to the distribution tank and Prestonsburg distributes it to the prison and bills the customer. MCWD supplies about 25 million gallons per year to the prison.

Water purchases from the interconnected systems in recent years were as follows:

Exhibit II-5
Water Purchases (Gallons)

Interconnection	2005	2006
Kermit	2,087,000	2,036,000
Prestonsburg	0	0
Mountain Water	2,701,000	3,985,000

Source: MCWD Lost Water Reports

No sales from MCWD to the other systems were noted.

IV. Expected Improvement/Improvement Timeline

- Implemented within five years.

V. Cost/Benefit Analysis and Support

Cost Analysis

- None

Benefit Analysis

- A faster response to disruptions in service.

Cost/Benefit Summary

Category	One Time	Annual Recurring
Cost	0	0
Benefits	0	0

Other Costs or Benefits

- None

VI. Utility Response

Recommended Action

____x_ Approved _____ Approved with Exception _____ Rejected

VII. Implementation Steps

Step 1: Expand the Crum Reservoir capacity by raising and repairing the dam and/or dredging the reservoir.

- Response: The District is currently working with the Soil Conservation District to obtain funding to dredge the reservoir. Timeline: When funding becomes available.

- Person Responsible: General Manager

Step 2: Install a Crum Reservoir bypass (pipe and valves).

- Response: This process was in the planning stage, however due to funding being cut, this has not been completed. When funding becomes available this will be a number one priority.

- Person Responsible: General Manager

Step 3: Expand the Treatment Plant capacity (in process).

- Response: An upgrade of the Treatment Plant to increase the capacity was submitted for bids and all the bids were to high. The District is seeking additional funds to cover the increase in cost to upgrade. Timeline: One year.

Step 4: Install a second line to the Clearwell tank.

- Response: A new 16" line has been proposed to replace existing water line. Timeline: When funding becomes available.

- Person Responsible: General Manager

Step 5: Expand the Clearwell tank capacity (in process).

- Response: When funding becomes available

- Person Responsible: General Manager

Step 6: Expand looping and valving of the transmission and distribution system.

- Response: This practice is being utilized where practical.

- Person Responsible: General Manager

Step 7: Expand distribution tank capacities or add additional distribution tanks.

- Response: The District has initiated the first phase of increasing the distribution's tank capacity beginning with the Clearwell tank. The second phase will be the Buck Creek tank and then the Coldwater tank. Timeline: When funding becomes available.

- Person Responsible: The Board and General Manager

VIII. Comments/Clarification of Intent

- **Consultant Name: David Vondle**

- **Discussion**

Step 3: Expand the Treatment Plant capacity.

As an alternative to finding more money for the planned expansion, the District should consider reducing the scope to fit the money available. As a second alternative, it may be possible to redirect the available money to water loss reductions which reduce the stress on the Treatment Plant capacity.

Step 4: Install a second line to the Clearwell tank.

The District should consider retaining and rehabilitating the existing line after the new line is installed.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter III**
- **Recommendation Number – 1**
- **Priority – B**

II. Recommendation Statement

1. Establish an in house capital program planning and management functions staffed by one engineer. Alternatively, this capital program management and function could be provided by a regional resource.

III. Background Findings

MCWD has an extensive capital program. The table below summarizes the current and recently completed major projects.

Exhibit III-1
MCWD Capital Projects, Major Repairs and Improvements
Completed in the Last Five Years

Completed Projects
• Replacement of Control Valves and Pressure Reducing Valves in the Distribution System
• Completion of Raw Water Intake and Transmission Main from the Tug Fork to Crum Reservoir
• Restoration and Maintenance of the Raw Water Intake Station
• County Wide Telemetry System Providing Automated Control of Pumping Stations and Monitoring of all Storage Tanks
• Rehabilitation of Peter Cave Branch Booster Pumping Station
• Replacement of Feed Line to Twin Water Storage Tanks
• Cleaning, Sterilization and Return to Service of Twin Water Storage Tanks
• Design of Replacement of Four Inch Water Main to Pike County Line (Flood Damage)
• Contract 12 - Water Main Extension Serving 230 Customers
• Eden School Tank
• KY 645 Water Main Extension, Booster Pump Station and Water Storage Tank
• Contract 14 - KY 40 Buck Creek Hill KDOH Water Main Relocation
• Water Meter Replacement Program (Over 1,000 Residential Meters Replaced to Date)

• County Wide Fire Hydrant Evaluation, Flow Testing and Certification
• Contract 16 - Water Main Extension to New KDOH Maintenance Garage on KY 645
• Contract 17 - Water Main Extension to Correct Low Pressure at Eden Subdivision
• Evaluation and Inspection of Twin Tanks, Buck Creek Hill and Clearwell Tank
• Upgrade of Otto Brown Booster Pumping Station to Correct a Flow Problem
• Installation of New Booster Pumping Station at Meathouse Branch to Correct Low Pressure and Flow Problem
• Security Vulnerability and Assessment and Emergency Response Plan Completed and Submitted to EPA
• Replacement of Drive Unit in Clarifier Number 2 in the Water Treatment Plant
• Various Minor Plant Improvements Required by the PSC Order
• Resolution of Numerous Low Pressure and Low Flow Customer Complaints
In Process
• KY 40 Warfield Road KDOH Water Main Relocation
• Upper Alpha Branch Water Main Replacement to Correct Low Pressure and Flow Problem
• Johnson Bottom Water Main Replacement to Correct Low Pressure and Flow Problem
• Water Treatment Plant Expansion and Improvements Phase I (Increases Capacity to 2.95 MGC per Day)
• Water Treatment Plant Expansion and Improvements Phase II (Renovate Building and Eqt, Add Offices and Conf Area)
• RD Phase I - Clearwell Tank Replacement - Single 300,000 Gallon Tank to Two 500,000 Tanks
• Wolfe Creek Water Main and Services Replacement (To Reduce Water Loss)
• Master Meter Installation - 12 Distribution Master Meters
• RD Phase II - Upgrade and Replacement of Buck Creek Hill and Stepp Water Storage Tanks
• KDOH Water Main Relocation at KY 3 and KY 645 (Will Correct Saltwell Branch Low Pressure Problem)
• Residential and Commercial Radio Read Meter Trial
• New Automated Billing System and Hardware

Source: MCWD Management Audit Kickoff Meeting Presentation confirmed by a letter from OBG

Summary details (start and completion dates, change orders, funding sources and contractors) on these projects were unavailable.

Most of the MCWD capital projects are funded by grants. A small amount of capital expenditures is funded by debt. MCWD capitalizes all capital expenditures regardless of funding source and depreciates the assets. The following table shows the additions to gross plant and donated capital (grants and contributions in aid of construction) in recent years.

Exhibit III-2
MCWD Additions to Gross Utility Plant and Donated Capital
(in thousands)

Fiscal Year	2006	2005	2004	2003	2002	2001	2000
Utility Plant	$21,809	$20,634	$19,150	$18,415	$18,240	$17,987	$17,040
Plant Additions	1,175	1,484	735	175	253	947	NA
Donated Capital (Contributions in Aid of Construction in 2001and 2002)	17,294	16,721	14,966	14,198	13,997	13,880	12,651
Donated Capital Additions	573	1,755	768	201	117	1,229	NA

Source: MCWD Annual Reports to the PSC and BWG calculations

- Utility plant additions totaled $4.8 million for the last six years. Donated capital / contributions in aid of construction totaled $4.6 million for the last six years. As of the end of 2006, MCWD had just $2.5 million in long-term debt on net plant of $14.8 million ($21.8 million gross plant less $7.0 million accumulated depreciation and amortization). Depreciation and amortization is not net of amortization of contributions-in-aid-of-construction.
- The MCWD 2006 Budget lists state grant proceeds of $768 thousand in 2004 and $700 thousand and $850 thousand budgeted for 2005 and 2006, respectively.
- MCWD has successfully addressed several of the KPSC concerns with its water provisioning process through its recent capital program.
- MCWD customer demand forecasting, system planning, capital project identification and prioritization, capital budgeting, capital program development and funding management resources are not adequate.
- Capital projects are not identified and prioritized properly.
- The past and current capital program has focused on system expansion over water loss reduction.
- Current capital funding does not adequately support needed capital programs.

IV. Expected Improvement/Improvement Timeline/Baseline

- A hope for better access of funding and may support Big Sandy ADD in better application for funds. Timeline: 6 months

V. Cost/Benefit Analysis and Support

Cost Analysis

- No cost for planning

Benefit Analysis

- Help to prioritize needs toward funding

VI. Company Response

Recommended Action

_____ Approved __X___ Approved with Exception _____ Rejected

- We agree that a Capital Program needs to be established, but do not agree that an in house engineer is necessary. We currently work with engineers through a contractual basis and they work closely with Big Sandy ADD toward capital projects deemed necessary by board approval.

VII. Implementation Steps

- This is already in progress.

VIII. Comments/Clarification of Intent

- **Consultant Name: David Vondle**
- **Discussion**

  An engineer should be hired or a regionally provided engineering function should be established. In addition to establishing the capital management process and managing the capital program, the engineer would be expected to increase capital funding from the several available sources and provide maintenance engineering assistance to the treatment and distribution sections. The District does not have adequate in-house capacity or expertise to achieve these objectives. An in-house engineer or regionally provided engineering function is required. A portion of the cost of the in-house engineer or regional engineering service can be charged to capital projects.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- III**
- **Recommendation Number -- 2**
- **Priority – A**

II. Recommendation Statement

2. As practical, prioritize water loss reduction programs over system expansion programs until water losses are reduced to 15 percent or less. (Reference Findings 3 and 4)
    - The 2007 IED grant money should be applied first to installing in-line master meters and pinpointing water losses by main.
    - After the water losses have been pinpointed, consider a service line leak repair / replacement program rather than a combined main and service line replacement program where practical. Service line repair/replacements are estimated to cost $400-500 each. Repairing or replacing all 3,500 service lines (which is not necessary) would likely cost less than $1.5 million. However, in some cases, it is impractical to fix the service line without repairing or replacing the main.

III. Background/Findings

3. Capital projects are not identified and prioritized properly. (Final Report page III-6)
    - The last capital program planning effort was the Capital Improvement Plan developed by OB&G in June 2003. This plan included recommendations and cost estimates for capital improvements in the water treatment plant, Crum Reservoir, telemetry system, meter replacements, storage tank renovations, and water main replacements. Several of the projects have been completed and others are in process. However, the plan has not been updated since it was first written.
    - There is no formal capital budget.
    - There is no formal capital program planning process.
    - There is no customer demand forecast or long-term system plan.
    - Capital projects are suggested by many sources, including:
        - MCWD employees
        - MCWD Board Members

- MCWD customers
- Kentucky DOW professionals
- OB&G professionals
- Big Sandy professionals

- The availability of funding strongly impacts the capital projects selected for implementation. Certain funds can only be used for certain types of projects. When those funds are available, the applicable projects are implemented.
- The Board members informally evaluate all potential capital projects and select the ones to be implemented based upon funding availability and their collective judgment.

4. The past and current capital program has focused on system expansion over water loss reduction. (Final Report page III-6)
   - As noted in Chapter II, Water Provisioning Process, unaccounted for water losses are, and have chronically been, exceptionally high. This results in higher than necessary O&M costs for pumping, treatment chemicals and operations, and leak repairs.
   - Prior Boards exhibited a bias towards capacity expansions over water loss reduction projects.
   - Many of the past and planned capital projects are for system capacity expansion rather than for water loss reduction, for example:
     - Contract 12 Water Main Expansion
     - Contract 16 Water Main Expansion
     - Contract 17 water Main Expansion
     - Water Treatment Plant Expansion (planned)
     - Clearwell Tank Replacement and Expansion (Planned)
   - While MCWD has a clear mission to serve all County citizens, its prioritization of projects has been out of balance. It has continued to expand capacity before the major water loss problems have been solved.

IV. Expected Improvement/Improvement Timeline

- Decease in water loss and increase in revenues to be an ongoing process.

V. Cost/Benefit Analysis and Support

Cost Analysis

- No cost for planning.

Benefit Analysis

Cost/Benefit Summary

Other Costs or Benefits

- None

VI. Utility Response

Recommended Action

___X__ Approved _____ Approved with Exception _____ Rejected

- We agree that accomplishing this goal would be great!

VII. Implementation Steps

Step 1: The 2007 IED grant money should be applied first to installing in-line master meters and pinpointing water losses by main.

- Response: The board has approved this and Bid Packages are being prepared.
- Person Responsible: Board of Commissioners

Step 2: After the water losses have been pinpointed, consider a service line leak repair replacement program rather than a combined main and service line replacement program where practical.

- Response: *MCWD agrees that this should be done.*
- Person Responsible: General Manager

VIII. Comments/Clarification of Intent

- **Consultant Name: David Vondle**
- **Discussion**

  Good management response.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- IV**
- **Recommendation Number -- 1**
- **Priority – B**

II. Recommendation Statement

1. Improve procedures to identify theft of service. (Refers to Finding No. 4)
   - Provide incentives to meter readers and other District employees to identify thefts of service that lead to the recovery of amounts owed to the District.
   - Use the County Attorney to recover amounts owed for the theft of service and publicize the District's intent to do so.
   - Use the 2007 Martin County enhanced 911 GIS/GPS initiative to identify premises receiving District-supplied water who are not being billed for that service.

III. Background/Findings[2]

4. Procedures to identify theft of service are incomplete.
   - Meter readers will report suspected theft of service based on evidence of meter tampering or neighbors reports. These reports are promptly investigated.
   - Customers found to have been involved in theft of service are not prosecuted. According to the County Attorney, he would be pleased to assist the District with the prosecution of these cases and at no cost other than court fees to the District.
   - District employees receive no financial incentive for the detection of theft of service and recovery of lost revenues.
   - The County's enhanced 911 service, which will be implemented in 2007, provides an opportunity to confirm who is receiving District-supplied water. This information could then be matched against District billing records to identify theft of service.
   - Based on interviews with District personnel, it does not appear that theft of service is a major contributor to the water loss problem. However, in addition to the use of "cheater" bars to bypass residential water meters

[2] See Final Report, pages IV-3 to IV-4

there are anecdotal reports of improper use of water from fire hydrants, that is, other than use by the fire departments.

IV. Expected Improvement/Improvement Timeline

- Implemented within one year

V. Cost/Benefit Analysis and Support

Cost Analysis

- Incentives paid to meter readers and other District employees to identify thefts of service that lead to the recovery of amounts owed to the District. (These amounts will be directly offset by collections of amounts owed)
- Court fees associated with using the County Attorney to recover amounts owed for the theft of service
- There will be no incremental costs associated with publicizing the District's intent to prosecute thefts of service.

Benefit Analysis

- Collections of amounts owed for theft of service
- Reduction of thefts of service going forward

Cost/Benefit Summary

Category	One Time	Annual Recurring
Cost – Court Fees	$0	$1,000
Cost - Incentives	$0	$5,000
Benefits - Recoveries	$0	$10,000

Other Costs or Benefits

- None

VI. Utility Response

Recommended Action

___x__ Approved _____ Approved with Exception _____ Rejected

VII. Implementation Steps

Step 1: Provide incentives to meter readers and other District employees to identify thefts of service that lead to the recovery of amounts owed to the District.

- Response: Offer to pay the meter readers or District employees a reward of 10% or $25.00 for the recovery of amounts owed the

District, this would be for each occurrence. This would need Board approval. Timeline: Ninety days.

- Person Responsible: Office Manager

Step 2: Use the County Attorney to recover amounts owed for the theft of service and publicize the District's intent to do so.

- Response: The District will discuss the procedures with the County Attorney and initiate this procedure immediately. Timeline: Immediately

- Person Responsible: General Manager

Step 3: Use the 2007 Martin County enhance 911 GIS/GPS initiative to identify premises receiving District-supplied water who are not being billed for that service.

- Response: Once enhanced 911 system is implemented, MCWD will begin to determine theft through use of this system. Timeline: Completion of 911 system

- Person Responsible: Office Manager

VIII. Comments/Clarification of Intent

- **Consultant Name: Joel F. Jeanson**
- **Discussion**

  Step 1 should be clarified to indicate whether the $25 is a minimum or maximum payout.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- IV**
- **Recommendation Number -- 2**
- **Priority – B**

II. Recommendation Statement

2. Establish procedures and take action necessary to assure compliance with MCWD Tariff Sheet No. 19. (Refers to Finding No. 2)

III. Background/Findings[3]

10. Controls are generally adequate to ensure the accuracy of customers' bills except that procedures to monitor for high usage may not be in compliance with the District's tariff.
    - Tariff Sheet 19 requires the District to monitor customer usage at least annually and, if usage is 100 percent or more above historical levels, test that meter for registration error.

IV. Expected Improvement/Improvement Timeline

- Implemented within one year

V. Cost/Benefit Analysis and Support

Cost Analysis

- Programming costs associated with exception reporting high usage
- Meter testing costs

Benefit Analysis

- Compliance with Tariff Sheet 19
- Increased customer satisfaction

Cost/Benefit Summary

Category	One Time	Annual Recurring
Costs – Programming	$500	$0
Costs – Meter Testing	$0	$500
Benefits	$0	$0

[3] See Final Report, page IV-3

Other Costs or Benefits

VI. Utility Response

Recommended Action

____x__ Approved _____ Approved with Exception _____ Rejected

VII. Implementation Steps

Step 1: Establish procedures and take action necessary to assure compliance with MCWD Tariff Sheet No. 19. (Refers to Finding No. 2)

- Response: The District developed a plan to replace all meters in the system. The District purchased one thousand (1000) meters and replaced the first one thousand (1000) meters. Tracking the customer usage was to begin with those meters, however, a change of Management occurred and this did not happened. Procedures will be put into effect to ensure compliance with the Tariff Sheet No. 19. The new software billing system is now in place and this will be completed once we have one year's data. Timeline: November 2008.

- Person Responsible: Office Manager

VIII. *Comments/Clarification of Intent*

- **Consultant Name: Joel F. Jeanson**
- **Discussion**

  It would be helpful to provide an outline of what will be included in the procedures. Also, the process by which the new billing system will be used to test for high usage should be described. If the new billing system must be enhanced to perform the needed tests for high usage, the plan to add that functionality should be described.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- IV**
- **Recommendation Number -- 3**
- **Priority – A**

II. Recommendation Statement

3. Improve collection of past due accounts. (Refers to Finding No. 5)
   - Change credit policy so that responsibility for the payment of water bills remains with the landlord rather than with the tenant for rental properties. This will help reduce the number of uncollectible accounts going forward.
   - Send disconnect notices to those customers who have not paid their bills on time as allowed by Commission-approved rules and regulations.
   - Use the County Attorney to recover delinquent past due accounts.

III. Background/Findings[4]

5. Procedures to collect past due accounts are inadequate.
   - CSRs check past due accounts receivable for customers applying for new service and will not prepare a work order for service to be turned-on without having first collected the past due balance (or made payment arrangements for the collection of the past due balance) and a meter deposit.
   - The District has not sent out disconnect notices for six months. As a result, no customers have had their service disconnected for non-payment during that time.
   - Recently, the District has started printing notices on bills that past due accounts may be shut-off for non-payment. According to the Office Manager, this has prompted some customers to pay past due balances. Printing this notice avoids the cost of mailing a separate disconnect notice, but does not satisfy Commission requirements for notification prior to actual physical disconnection for non-payment.
   - The District does not call customers in an attempt to collect past due balances and does not turn accounts over to collection agencies.
   - Tenants rather than landlords are generally responsible for water bills in rental properties.

[4] See Final Report, page IV-4

- The County Attorney has indicated a willingness to prosecute individuals for non-payment of bills.

IV. Expected Improvement/Improvement Timeline

- Implemented within one to two years

V. Cost/Benefit Analysis and Support

Cost Analysis

- Legal costs associated with changing credit policies and developing landlord agreements. These costs could be avoided if the County Attorney is used to provide these services.
- Costs (including printing and postage) to mail disconnect notices. The new Customer Information System should have the capability to print disconnect notices).
- Court fees associated with using the court system to recover past due accounts receivable.

Benefit Analysis

- Reduced bad debt expenses
- Improved cash flows

Cost/Benefit Summary

Category	One Time	Annual Recurring
Costs – Legal Fees	$0	$0
Costs – Mailing	$0	$1,800
Benefits	$0	$18,000

Other Costs or Benefits

VI. Utility Response

Recommended Action

___x__ Approved _____ Approved with Exception _____ Rejected

VII. Implementation Steps

Step 1: Change credit policy so that responsibility for the payment of water bills remains with the landlord rather than with the tenant for rental properties.

- Response: The PSC informed the District that this was not legal and we could not do this.

- Person Responsible: General Manager

Step 2: Send disconnect notices to those customers who have not paid their bills on time as allowed by Commission-approved rules and regulations.

- Response: The District has implemented this procedure effective May 2007.

- Person Responsible: Office Manager

Step 3: Use the County Attorney to recover delinquent past due accounts.

- Response: The County Attorney has assured the District that he will assist in any way he can to help with the past due accounts. Timeline: Immediately

- Person Responsible: General Manager

VII. Comments/Clarification of Intent

- **Consultant Name: Joel F. Jeanson**
- **Discussion**

  No comment, assuming the policies and procedures have been updated in writing for both the sending of disconnect notices and for the use of the County Attorney.

  More detail should be provided on how the District intends to use the County Attorney to recover delinquent past due accounts.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- IV**
- **Recommendation Number -- 4**
- **Priority – C**

II. Recommendation Statement

4. Improve meter reading controls. (Refers to Finding No. 6)
   - Perform periodic rotation of meter reading routes.
   - Develop and implement monthly performance reporting and analysis processes.
   - Perform supervisory test inspections of meter readings, including meters not read.

III. Background/Findings

6. Meter reading controls are inadequate.
   - Meter reading routes are not rotated and meter readings are not spot-checked by supervisors for accuracy.
   - Prior meter readings are shown in the meter reading book which provides an opportunity for meter readers to 'curb" meter readings. Curbing refers to the practice of entering a meter reading into the meter reading book without having actually read the meter. However, there is no evidence that suggests that the curbing of meter readings is occurring.
   - The Office Manager requested in October 2006 that meter readers write an explanation in the meter reading book when unable to obtain a meter reading. While this information will be valuable in monitoring meter reading performance, the information has not been compiled since October due to a lack of resources. In addition, no specific action has been taken based on the information reported for October.
     - In October 2006, 70 A-Section meters, or 5 percent of all A-Section meters, were not read and 46 B-Section meters, or 2 percent of all B-Section meters were not read.
     - All B-Section no-reads were explained with only one meter not read because it could not be located. Sixty-one percent of all A-Section no-reads did not have an explanation, and of the unread meters with an explanation, over one-half were because the meter could not be located.

- Routine reporting and analysis of meter reading performance does not include monitoring the percentage of meters read by meter reader by month, the percentage of meter reading errors per meter reader per month, and the identification of the number meters not read by reason (e.g., can't find, hazardous condition, covered by water).

IV. Expected Improvement/Improvement Timeline

- Implement within one year
- Develop guidelines for the meter readers to follow.

V. Cost/Benefit Analysis and Support

Cost Analysis

Benefit Analysis

Cost/Benefit Summary

Category	One Time	Annual Recurring
Cost	0	0
Benefits	0	0

- **Other Costs or Benefits**

VI. Utility Response

Recommended Action

___x__ Approved _____ Approved with Exception _____ Rejected

VII. Implementation Steps

Step 1: Perform periodic rotation of meter reading routes.

- Response: Guidelines will be developed and implemented August 2007.
- Person Responsible: Office Manager

Step 2: Develop and implement monthly performance reporting and analysis process.

- Response: Guidelines will be developed and implemented by August 2007.
- Person Responsible: Office Manager.

Step 3: Perform supervisory test inspections of meter readings, including meters not read.

- Response: Guidelines will be developed and implemented by August 2007.

VIII. Comments/Clarification of Intent

- **Consultant Name: Joel F. Jeanson**
- **Discussion**

  No comments, but would suggest that the guidelines be provided to the PSC when completed.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- IV**
- **Recommendation Number -- 5**
- **Priority – C**

II. Recommendation Statement

5. Provide meter readers additional tools to complete their routes timely and safely. (Refers to Finding No. 5)
   - Provide hand pumps for the removal of water from meter pits
   - Provide devices (e.g., pepper spray) that can be used to protect the meter readers from hazardous situations

III. Background/Findings

5. Meter reading costs are slightly below the industry average, and can be further reduced.
   - Meter readers do not have all the tools needed to complete their routes timely and safely.
     - Meters readers do not have hand pumps for the removal of water from meter pits
     - Meter readers do not have devices (e.g., pepper spray) that can be used to protect the meter reader from hazardous situations

IV. Expected Improvement/Improvement Timeline

- Implement when funds become available

V. Cost/Benefit Analysis and Support

Cost Analysis

- Costs of hand pumps and pepper spray (or equivalent)

Benefit Analysis

- Reduced workers compensation costs
- Improved employee safety and satisfaction

Cost/Benefit Summary

Category	One Time	Annual Recurring
Costs – Hand Pumps	$100	$0
Costs – Pepper Spray	$0	$200
Benefits	$0	$0

Other Costs or Benefits

VI. Utility Response

Recommended Action

___x__ Approved _____ Approved with Exception _____ Rejected

VII. Implementation Steps

Step 1: Provide hand pumps for the removal of water from meter pits.

- Response: The District agrees the recommendation. Timeline: August 2007 or when funds become available.
- Person Responsible: General Manager

Step 2: Provide devices (e.g., pepper spray) that can be used to protect the meter reader from hazardous situations.

- Response: The District agrees the recommendation. Timeline: August 2007 or when funds become available.

VIII. Comments/Clarification of Intent

- **Consultant Name: Joel F. Jeanson**
- **Discussion**

The timeline should mean no later than August 2007, and sooner if funds become available. This should be a relatively low cost recommendation.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- IV**
- **Recommendation Number -- 6**
- **Priority – C**

II. Recommendation Statement

6. Consider implementing cycle billing to shorten the meter reading-to-billing cycle and improve cash flows to the District. (Refers to Finding No. 8).

III. Background/Findings

8. The meter reading-to-billing cycle does not maximize cash flow to the District.
   - Meters are read from approximately the 15th to the 29th of each month and are billed at month-end.
   - For meters read on the 15th, it is over two weeks before those accounts are billed.
   - Cash flow could be improved

IV. Expected Improvement/Improvement Timeline

- **Evaluate**

V. Cost/Benefit Analysis and Support

Cost Analysis

- Programming costs associated with changing bill due dates.

Benefit Analysis

- Improved cash flows

Cost/Benefit Summary

Category	One Time	Annual Recurring
Costs – Programming	$500	$0
Benefits – Cash Flow	$0	$4,000

Other Costs or Benefits

VI. Utility Response

Recommended Action

_____ Approved ___x__ Approved with Exception _____ Rejected

VII. Implementation Step

Step 1: Consider implementing cycle billing to shorten the meter reading-to-billing cycle and improve cash flows to the District. (Refers to Finding No. 8).

- Response: The District will need to evaluate the cost to implement this procedure
- Person Responsible: General Manager

VIII. Comments/Clarification of Intent

- **Consultant Name: Joel F. Jeanson**
- **Discussion**

  The evaluation process and timeframe should be spelled out more clearly together with defining a process for reporting the status of the evaluation to PSC staff.

Martin County Water District
Management Audit Action Plan

I. **Report Reference**

- **Chapter -- IV**
- **Recommendation Number -- 7**
- **Priority – C**

II. **Recommendation Statement**

7. Consider implementing bi-monthly meter reading for residential customers while continuing to bill customers monthly. (Refers to Finding No. 7)

III. **Background/Findings**

7. Meter reading costs are slightly below the industry average, and can be further reduced.

- The District pays approximately $0.81 per meter reading, including labor and transportation costs.[5] The water industry average based on a 2005 study is $0.82 per meter reading for comparable costs.
- The District's difficult terrain and lack of density suggests that costs to read meters should be higher than the industry average.
- The District attempts to read each meter monthly.
  - Water utilities commonly read residential meters less frequently than monthly. In some jurisdictions, meters are read bi-monthly or quarterly.
  - These utilities may then bill customers coincident with the meter readings or bill customers monthly using estimated meter readings in those months in which actual reads are not obtained.

IV. **Expected Improvement/Improvement Timeline**

- Timeline: December 2007

V. **Cost/Benefit Analysis and Support**

Cost Analysis

Benefit Analysis

Cost/Benefit Summary

[5] BWG calculation based on payroll documents provided by the District.

Category	One Time	Annual Recurring
Cost	0	0
Benefits	0	0

Other Costs or Benefits

VI. Utility Response

Recommended Action

_____ Approved ___x__ Approved with Exception _____ Rejected

VII. Implementation Steps

- Step 1: Consider implementing bi-monthly meter reading for residential customers while continuing to bill customers monthly.
    - Response: The District will investigate and evaluate this method. However, at this point, funding this process could be a problem.
    - Person Responsible: General Manager

VIII. Comments/Clarification of Intent

- **Consultant Name: Joel F. Jeanson**
- **Discussion**

  The nature of the perceived funding issue should be discussed in more detail. The new billing system should have the capacity to render a bill based on an estimated meter read. Implementation steps should include testing the new billing systems ability to render a reasonable estimated bill.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- IV**
- ***Recommendation Number -- 8***
- **Priority – C**

II. Recommendation Statement

8. As services are replaced, those meters located in difficult to read locations should be moved to locations that are less difficult to reach and placed in a consistent manner relative to the main and customer's premises. (Refers to Finding No. 7)

III. Background/Findings

7. Meter reading costs are slightly below the industry average, and can be further reduced.
   - The District pays approximately $0.81 per meter reading, including labor and transportation costs.[6] The water industry average based on a 2005 study is $0.82 per meter reading for comparable costs.
   - The District's difficult terrain and lack of density suggests that costs to read meters should be higher than the industry average.
   - Some meters are difficult to locate and reach due to the inconsistent placement of meters and the terrain in which those meters are located.

IV. Expected Improvement/Improvement Timeline

- Timeline: September 2007.

V. Cost/Benefit Analysis and Support

Cost Analysis

Benefit Analysis

Cost/Benefit Summary

Category	One Time	Annual Recurring
Cost	0	0
Benefits	0	0

Other Costs or Benefits

[6] BWG calculation based on payroll documents provided by the District.

VI. Utility Response

Recommended Action

____x_ Approved _____ Approved with Exception _____ Rejected

VII. Implementation Steps

Step 1: As services are replaced, those meters located in difficult to read locations should be moved to locations that are less difficult to reach and placed in a consistent manner relative to the main and customer's premises. (Refers to Finding No. 7)

- Response: Adopt a policy to insure that the majority of taps made are placed in a consistent pattern. Timeline: September 2007
- Person Responsible: General Manager and Distribution Supervisor

VIII. Comments/Clarification of Intent

- **Consultant Name: Joel F. Jeanson**
- **Discussion**

No comment

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- IV**
- **Recommendation Number -- 9**
- **Priority – C**

II. Recommendation Statement

9. Complete a cost-benefit study of AMR prior to making further investments in AMR technology. (Refers to Finding No. 13)

III. Background/Findings

13. While likely to provide some benefits, it is unlikely that the AMR pilot project can be cost-justified if the expenditure was based on borrowed or revenue-generated funds.
    - The District has contracted for the installation of 400 AMR devices at a cost of $94,500.
    - The AMR pilot program is totally funded by grants. As a result, there was no cost-benefit study prepared to justify this expenditure.
    - This meter requires that a meter reader drive by in order to pick-up the radio transmitted meter reading, thus resulting in some efficiency gains.
    - The meters to be installed will be more tamper-proof, will generate a "tamper notice" if the wire is disconnected, and even if the wire disconnected, the meter will continue to record water consumption.[7] Therefore, the AMR devices will be more effective against theft-of-service than the current meters.

IV. Expected Improvement/Improvement Timeline

- Timeline: This process will be on-going as funding becomes available.

V. Cost/Benefit Analysis and Support

Cost Analysis

Benefit Analysis

- The District will be able to detect theft of service easier.

Cost/Benefit Summary

[7] Based on discussion with the Sensus area representative for Wisconsin and Minnesota on January 29, 2007.

Category	One Time	Annual Recurring
Cost	0	0
Benefits	0	0

Other Costs or Benefits

VI. Utility Response

Recommended Action

___x__ Approved _____ Approved with Exception _____ Rejected

VII. Implementation Steps

Step 1: Complete a cost-benefit study of AMR prior to making further investments in AMR technology. (Refers to Finding No. 13)

- Response: The District has purchased 326 AMR with grant monies. The District will evaluate the benefits of these meters and decide on the next step whether to invest more money in this technology. Timeline: December 2007

- Person Responsible: Board and General Manager

VIII. Comments/Clarification of Intent

- **Consultant Name: Joel F. Jeanson**

- **Discussion**

  A step should be added to consider alternative uses for grant monies when making the investment decision.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- IV**
- **Recommendation Number -- 10**
- **Priority – C**

II. Recommendation Statement

10. Process customer payments on the day received so the payments are posted to the District's account on the day received. (Refers to Finding No. 13)

III. Background/Findings

13. Customer payments could be processed more quickly, thereby making cash available sooner for bill payment and other District needs.
    - Since moving to the new customer service office, mail is now delivered by the United States Postal Service at 2:30 PM rather than in the morning, as was the case at the former location.
    - Customer payments that arrive in the 2:30 PM mail are processed the next day.
    - After processing, customer payments will be taken to the bank for deposit. However, the bank deposit will be made at 4:00 PM, after the 2:30 PM bank cut-off for same day posting.
    - As a result, for example, payments delivered by mail on Tuesday will be processed and deposited on Wednesday but not posted to the District's account until Thursday.

IV. Expected Improvement/Improvement Timeline

- Timeline: Within one year

V. Cost/Benefit Analysis and Support

- **Cost Analysis**
- **Benefit Analysis**
- **Cost/Benefit Summary**

Category	One Time	Annual Recurring
Cost	0	0
Benefits	0	0

- **Other Costs or Benefits**

VI. Utility Response

Recommended Action

_____ Approved __x__ Approved with Exception _____ Rejected

VII. Implementation Steps

Step 1: Process customer payments on the day received so the payments are posted to the District's account on the day received. (Refers to Finding No. 13)

- Response: The District's account at the bank is a non-interest bearing account. The District attempts to process all payments on the day they arrive, however, during the busy part of the month, this does not always happen.

- Person Responsible: Office Manager

VIII. Comments/Clarification of Intent

- **Consultant Name: Joel F. Jeanson**

- **Discussion**

  This response does not appear to respond to the issues identified in the finding and recommendation.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- V**
- **Recommendation Number -- 1**
- **Priority – A**

II. Recommendation Statement

1. The District should file a rate case with the Kentucky Public Service Commission.

III. Background/Findings

Exhibit V-4
Fiscal 2007 Budget Comparison

	Fiscal 2006		Fiscal 2007		
	Budget	Actual	Budget	Variance From 2006 Budget	Variance From 2006 Actual
Operating Revenues	***$1,440,000***	***$1,135,790***	***$1,597,000***	***$157,000***	***$461,210***
O&M Expenses:					
Salaries and Wages	575,000	431,633	600,000	25,000	168,367
Employee Pensions and Benefits	118,700	102,793	118,700	0	15,907
Purchased Water	14,000	8,688	12,000	(2,000)	3,312
Purchased Power	180,000	179,697	190,000	10,000	10,303
Chemicals	40,000	51,187	60,000	20,000	8,813
Materials and Supplies	85,000	54,430	90,000	5,000	35,570
Contractual Services - Engineering	0	0	0	0	0
Contractual Services - Accounting	39,000	39,050	39,000	0	(50)
Contractual Services - Legal	3,000	0	3,000	0	3,000
Contractual Services - Testing	13,000	17,807	30,000	17,000	12,193
Contractual Services - Other	20,000	5,734	10,000	(10,000)	4,266
Rental of Building and Equipment	4,000	2,000	10,100	6,100	8,100
Transportation Expenses	30,000	28,278	35,000	5,000	6,722

	Fiscal 2006		Fiscal 2007		
	Budget	Actual	Budget	Variance From 2006 Budget	Variance From 2006 Actual
Insurance – Vehicle	10,500	10,094	10,500	0	406
Insurance – General Liability	24,000	20,457	25,000	1,000	4,543
Insurance – Workers' Comp	30,000	21,584	30,000	0	8,416
Insurance – Other	35,000	4,907	10,000	(25,000)	5,093
Advertising	1,000	520	2,000	1,000	1,480
Bad Debt Expense	22,000	24,631	26,000	4,000	1,369
Miscellaneous Expenses	20,000	23,914	25,000	5,000	1,086
Total Operating Expenses	**1,264,230**	**1,032,404**	**1,326,300**	**62,070**	**293,896**
Operating Margin (EBITDA)	**175,770**	**103,386**	**270,700**	**94,930**	**167,314**
Depreciation Expense	535,000	552,015	560,000	25,000	7,985
Taxes Other Than Income Taxes	42,000	35,069	47,000	5,000	11,931
Interest Income	400	746	500	100	(246)
Interest Expense	110,500	115,644	115,700	5,200	56
Net Income	**(511,330)**	**(598,596)**	**(451,500)**	**59,830**	**147,096**
Capital Contributions	850,000	572,740	1,250,000	400,000	677,260
Change in Net Assets	$338,670	$(25,856)	$798,500	$459,830	$824,356

Source: Budget Summary of Martin County Water District

Fiscal 2007 budgeted revenues exceed Fiscal 2006 actual revenues by 40.6 percent. Fiscal 2007 budgeted operating expenses exceed Fiscal 2006 actual operating expenses by 28.5 percent and Fiscal 2006 budgeted expenses by 4.9 percent. The budgeted Net Loss for Fiscal 2007 is 24.6 percent less than the actual Net Loss for Fiscal 2006. The increase in operating revenues is due to the anticipated rate increase associated with the RD loan.

Compared to Fiscal 2001 actual results, the compound annual growth rate for revenues is 8.7 percent and for operating expenses is 11.2 percent.

VI. Expected Improvement/Improvement Timeline/Baseline

- Within one year based on financial reports indication MCWD is in the red.

VII. Cost/Benefit Analysis and Support

Cost Analysis

- An increase will be beneficial in many ways. A Rate Case will help in determining this.

Benefit Analysis

- The district is in a financial crunch and additional funds are desperately needed in order to continue to function.

Cost/Benefit Summary

Other Costs or Benefits

VIII. Company Response

Recommended Action

___x Approved _____ Approved with Exception _____ Rejected

- MCWD agrees with the recommendation and plans to implement as intended.

IX. Implementation Steps

Step 1: Place Rate Case Analysis on the next MCWD Board agenda and determine if Board is willing to do so.

- Person Responsible: Board of Commissioners and General Manager Timeline: May 21, 2007.

Step 2: Pending Board approval, send a letter of request to PSC for Rate Case Analysis.

- Person Responsible: Joe Hammond Timeline: May 22, 2007

Step 3: Pending response from PSC, schedule a time for completing a rate case.

- Person Responsible: Board of Commissioners and General Manager Timeline: Pending PSC Approval

X. Comments/Clarification of Intent

- **Consultant Name: Joel F. Jeanson**
- **Discussion**

  No comment assuming the actions to be taken in May occurred as described.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- V**
- **Recommendation Number -- 2**
- **Priority – A**

II. Recommendation Statement

2. Clearly define the roles of the Commissioners and General Manager. The definitions should be explicit as to the scope and limits of authority, the types of decisions that can be made, and areas of responsibility. (Refers to Finding No. 3)
   - Change the District's management and governance processes so that the General Manager has responsibility for all functional areas, including finance and accounting and customer service. (See Recommendation No. 7)
   - Clearly define decision making responsibilities for the following:
     - Personnel matters (e.g., hiring and firing, authorizing overtime, pay raises for individuals, benefits)
     - Financial decisions (e.g., spending authorization, limits on the ability to commit the District to contracts, spending outside the budget)
     - Operating decisions (e.g., setting construction and maintenance priorities)
   - Expand the District's Fiscal Policies to fully define the role of the General Manager including roles related to budget development and approval, variance analysis, and disbursement approval.
   - The objective is to eliminate any overlap between the Board and the General Manager. The General Manager should have full authority for all decisions in his areas of responsibility, with the Board providing after-the-fact oversight.

III. Background/Findings

3. The roles and responsibilities of the General Manager and Board of Commissioners are not clearly defined and the organization is not appropriately structured as the District evolves from its crisis mode of operations.
   - The current organization structure in which all functional areas do not report to the General Manager and in which members of the Board of

Commissioners have significant hands-on involvement in the day to day operations of the District is not typical in the utility industry.

- As noted in Chapter One, many significant problems facing the District over the past few years have been fixed in large part by the active participation of the individual members of the Board of Commissioners.
- Given that so many of these problems have been resolved, the District should evolve back to a more traditional organization and management structure for the day-to-day operations of the District. That is, an organization structure in which all functional areas report to the General Manager and the Board of Commissioners becomes an oversight body rather than one involved in the day-to-day activities of the District.
- The General Manager does not currently direct accounting and finance and customer service activities (i.e., the business office activities).

IV. Expected Improvement/Improvement Timeline/Baseline

- Implemented immediately based on the need for a more standard organization.

V. Cost/Benefit Analysis and Support

Cost Analysis

- No cost necessary

Benefit Analysis

- Better communication with the General Manager regarding financial expenditures

Cost/Benefit Summary

Other Costs or Benefits

VI. Company Response

Recommended Action

___x_ Approved _____ Approved with Exception _____ Rejected

Because of the current financial strain, the district works very closely with our accounting firm to prioritize bills to be paid and orders to be processed. The manager will need to continue to do this until we are in a better financial status.

MCWD agrees with the recommendation and plans to implement as intended.

VII. Implementation Steps

Step 1: Change the District's management and governance processes so that the General Manager has responsibility for all functional areas, including finance, accounting and customer service. (See Recommendation No. 7) The district will begin to address all issues through board meetings involving the General Manager.

- Person Responsible: Board of Commissioners and General Manager Timeline: Immediately

Step 2: Clearly define decision making responsibilities for the following:

- Personnel matters (e.g., hiring and firing, authorizing overtime, pay raises for individuals, benefits)
- Financial decisions (e.g., spending authorization, limits on the ability to commit the District to contracts, spending outside the budget)
- Operating decisions (e.g., setting construction and maintenance priorities)
- Person Responsible: Board of Commissioners and Joe Hammond Timeline: Immediately

Step 3: Expand the District's Fiscal Policies to fully define the role of the General Manager including roles related to budget development and approval, variance analysis, and disbursement approval.

- Person Responsible: Board of Commissioners and General Manager Timeline: Immediately

VIII. Comments/Clarification of Intent

- **Consultant Name: Joel F. Jeanson**
- **Discussion**

No comment

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- V**
- **Recommendation Number -3**
- **Priority – C**

II. Recommendation Statement

3. As soon as funding is available, begin to pay the members of the Board of Commissioners salaries based on guidelines provided by Kentucky Administrative Regulations. (Refers to Finding No. 4)

III. Background/Findings

4. The members of the Board of Commissioners are not properly compensated for services provided.
   - Board members receive no compensation from the District.
   - Board members view the services they provide to the District as a personal and civic responsibility. These services and the level of effort expended by the current Board on behalf of MCWD ratepayers has been significant.
   - MCWD ratepayers should not expect that Commissioners continue to provide these services on a volunteer basis.

IV. Expected Improvement/Improvement Timeline/Baseline

- Implemented within three years based on the fact that rates have not increased and current funding is needed to keep operations running.

V. Cost/Benefit Analysis and Support

Cost Analysis

- This would need to be determined by the Board of Commissioners when funding is available.

Benefit Analysis

- If the operation is financially successful, these positions should be compensated so that people will not be discouraged from giving of their time.

Cost/Benefit Summary

- The benefit would show Board Members an appreciation for service to the community.

Other Costs or Benefits

VI. Company Response

Recommended Action

__x___ Approved _____ Approved with Exception _____ Rejected

- MCWD agrees with the recommendation and plans to implement as intended.

VII. Implementation Steps

Step 1: The district will place on board agenda on May 21 to approve filing for rate case.

- Person Responsible: Board of Commissioners Timeline: 5-21-2007

Step 2: Once approved by board, send letter of request to PSC.

- Person Responsible: Joe Hammond Timeline: 5-23-2007

Step 3: Wait for approval and hopefully schedule with PSC for Rate Case analysis

- Person Responsible: Joe Hammond Timeline: 6-30--2007

VIII. Comments/Clarification of Intent

- **Consultant Name: Joel F. Jeanson**
- **Discussion**

  The implementation steps should be reviewed and reconsidered. It is not clear how these implementation steps relate to the recommendation.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- V**
- **Recommendation Number – 4**
- **Priority – A**

II. Recommendation Statement

4. As soon as funding is available, arrange for an external audit of the District's financial statements and then continue these audits on a timely basis going forward.

III. Background/Findings

4. The last audited financial statements are for the year ended December 31, 2001.
   - The District does not currently have the funds to pay for annual financial audits.
   - The CPA firm hired to complete the Fiscal 2001 audit was not fully paid as of September 30, 2006.
   - The local CPA firm's independence is impaired given their primary role in developing the District's financial statements. Therefore, they will be unable to be engaged to audit those financial statements

IV. Expected Improvement/Improvement Timeline/Baseline

- Within two years based on financial reports and the need for MCWD to build funds for this.

V. Cost/Benefit Analysis and Support

Cost Analysis

- This is an activity which would need to go through the bidding process.

Benefit Analysis

- This would benefit MCWD in protection of funds, the way they are processed, budgeted and expended.

Cost/Benefit Summary

Other Costs or Benefits

VI. Company Response

Recommended Action

__x___ Approved _____ Approved with Exception _____ Rejected

- MCWD agrees with the recommendation and plans to implement as intended.

VII. Implementation Steps

Step 1: Place on Board Agenda for discussion.

- Person Responsible: Board of Commissioners and General Manager Timeline: When money becomes available.

Step 2: Pending board approval, take bids for an external audit

- Person Responsible: Board of Commissioners and Joe Hammond Timeline: When money becomes available.

Step 3: Bring bids to board for approval.

- Person Responsible: Board of Commissioners and General Manager Timeline: When money becomes available.

Step 4: Contact accepted bidder to schedule audit

- Person Responsible: General Manager Timeline: When money becomes available.

VIII. Comments/Clarification of Intent

- **Consultant Name: Joel F. Jeanson**
- **Discussion**

  It is important to address the funding issue. The answer should be to include the pro forma expense in the rate case.

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter – V**
- **Recommendation Number – 5**
- **Priority – C**

II. Recommendation Statement

5. As soon as funding becomes available, establish a position of bookkeeper / accountant with responsibility for accounting and other transactional accounting processes. (Refers to Finding No. 8)
   - Check signing and bank account reconciliations should remain separate from the duties of the bookkeeper / accountant.
   - In the event the District pursues the regionalization of certain functions, this could be a function that becomes regionalized. (See Recommendation 6)

III. Background/Findings

8. The District's Fiscal Policies are generally reasonable for a utility of its size.
   - The District has well-defined and up-to-date Fiscal Policies.
   - All finance and accounting services are provided by an outside CPA firm. According to the firm's response to the District's RFP, it will provide services to the District including but not limited to:

     "(A)ccounts payable services with purchase order system development and maintenance, accounts receivable service development and reconciliation, cash reconciliation and internal control development and maintenance, complete payroll services and reporting, relative accounting services and general ledger maintenance in accordance with the PSC prescribed chart of accounts, special reporting as needed including PSC reports, budgeting and analysis, assistance with required audits, and other accounting services as required for a flat fee of $3,250 per month."

   - While members of the Board of Commissioners interact frequently with the outside CPA firm, no one at the District appears to have the financial expertise needed to provide accounting direction or perform effective analyses of financial results.
   - The District's Fiscal Policies do not provide for active involvement of the General Manager. For example, the role of the General Manager related to budget development and approval and the approval of disbursements is not defined in the Fiscal Policies. Also, the General Manager does not see

financial results and budget variances until the financial information is presented to the Board each month.

- The accuracy of accounts receivable balances is in question as a result of the difficulty reconciling information coming from the billing / customer information system.

IV. Expected Improvement/Improvement Timeline/Baseline

- Within three years based on financial reports and the need for MCWD to build revenue.

V. Cost/Benefit Analysis and Support

Cost Analysis

- Personnel Salary

Benefit Analysis

- ***We are very satisfied with the work our current CPA is doing. This position might make things smoother for them.***

Cost/Benefit Summary

Other Costs or Benefits

VI. Company Response

Recommended Action

____x_ Approved _____ Approved with Exception _____ Rejected

- MCWD agrees with the recommendation and plans to implement as intended.

VII. Implementation Steps

Step 1: Place on Board Agenda for discussion.

- Person Responsible: Board of Commissioners and General Manager Timeline: May 30, 2010.

Step 2: Pending board approval, go through the hiring process

- Person Responsible: Board of Commissioners and General Manager Timeline: June 30, 2010.

VIII. Comments/Clarification of Intent

- **Consultant Name: Joel F. Jeanson**
- **Discussion**

  No comment

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter – V**
- **Recommendation Number – 6**
- **Priority – B**

II. Recommendation Statement

- The District should encourage its management staff and the members of the Board of Commissioners to take better advantage of State sponsored training opportunities

III. Background/Findings

- While the District has taken advantage of some State sponsored training for management staff and members of the Board of Commissioners in the past, it has not taken full advantage of the training offered by the State and the Kentucky Rural Water Association.

IV. Expected Improvement/Improvement Timeline/Baseline

- Within one year based on the need for additional training.

V. Cost/Benefit Analysis and Support

Cost Analysis

- Registration Fees and Room and Board during the training.

Benefit Analysis

- Commissioners and personnel who are more informed and updated on training.

Cost/Benefit Summary

Other Costs or Benefits

VI. Company Response

Recommended Action

____x_ Approved _____ Approved with Exception _____ Rejected

- MCWD agrees with the recommendation and plans to implement as intended.

VII. Implementation Steps

Step 1: When trainings are scheduled, they will be brought to the Board's attention during meetings, so the Board can decide who needs to go.

- **Response:** District agrees this needs to be done.
- **Person Responsible**: Board of Commissioners and General Manager **Timeline:** On-going.

IX. Comments/Clarification of Intent

- **Consultant Name: Joel F. Jeanson**
- **Discussion**

  No comment

Martin County Water District
Management Audit Action Plan

I. Report Reference

- **Chapter -- V**
- **Recommendation Number –7**
- **Priority – A**

II. Recommendation Statement

7. Consider increased regionalization to achieve economies of scale and reduce vulnerabilities to supply and personnel interruptions. (Refers to Chapter II, Findings 3 and 9)
   - MCWD lacks adequate scale to provide consistently all professional functions necessary, such as engineering, laboratory, bookkeeping, and pollution control.
   - An unplanned loss of personnel in any section creates immediate problems in timely completion of work or performance of critical functions.
   - MCWD relies on free or low cost services not under its control for technical services. These services are provided by DOW, Kentucky Rural Water Association and Big Sandy.
   - MCWD lacks significant scale to leverage lower costs from suppliers and cannot maintain a full inventory of materials.

III. Background/Findings

3. MCWD makes good use of technical services available to assist it.
   - MCWD has developed a good rapport with the Kentucky Department of Water (DOW) Drinking Water Branch. MCWD regularly receives and follows technical advice from Drinking Water Branch experts. DOW technical services are provided without charge.
   - MCWD extensively utilizes the assistance of the Big Sandy Area Development District (Big Sandy) in identifying, securing and administering grants and loans. The Authority also promotes economic development in the county. Funding and economic development is provided without charge and grant administration is provided by a fee taken from the grant.
   - MCWD regularly seeks the assistance of the Kentucky Rural Water Association. For example, the Association conducted a Peer Review of MCWD in 2005 and issued its report in January 2006. MCWD pays membership dues to the Association, but specific assistance activities, such as the peer review, are provided without additional charge.

- MCWD routinely receives technical assistance and advice from its principal engineering firm, O'Brien & Gere (OB&G). OB&G provides advice and counsel on many technical topics to the District. OB&G only receives payments for specific engineering and construction management projects once the project has been bid. The frequent advice and assistance is provided without charge.

9. Adequate resources – labor, materials and equipment – are not available for the water provisioning process.
   - There are only four full-time water treatment plant operators and two on-call part-time operators. A seven by 24 hour operation requires a minimum of five full-time operators to cover 21 shifts per week and have spare capacity for vacations, illness, training and other absences.
   - There are only five distribution employees. The sixth distribution employee, the supervisor, recently became the fourth treatment plant operator and was not replaced in distribution. One of the distribution employees is largely occupied by sampling and other duties and is normally unavailable for main, service and meter work. Many jobs require a crew of four or more because of difficult traffic management conditions. With vacations and other absences, this often results in having a single crew doing one job at a time each day.

IV. Expected Improvement/Improvement Timeline/Baseline

- Never

- **Cost Analysis**
- **Benefit Analysis**
- **Cost Benefit Summary**
- **Other Costs or Benefits**

V. Company Response

Recommended Action

____ Approved _____ Approved with Exception ___x__ Rejected

- **MCWD does not agree with this recommendation.**

VI. Comments/Clarification of Intent

- **Consultant Name: Joel F. Jeanson / David Vondle**
- **Discussion**

BWG disagrees with the District's response. In our opinion, MCWD by itself cannot afford the availability of resources that larger entities benefit from. It is not necessary to fully merge MCWD with other entities to achieve the economies of scale and other benefits of a larger organization. MCWD could enter into resource sharing agreements with other like minded regional utilities for some or all of the areas that could benefit from larger scale.

Areas in which MCWD could benefit from regional resource sharing include:

- Capital program planning, funding and management, which MCWD does not have the capability for in-house
- Maintenance engineering and technical services – problem solving could be improved by sharing scarce technical resources with several utilities
- Water treatment plant control rooms – control rooms could be consolidated and the remote plants would not need 7 X 24 attendance
- Distribution crew reinforcement for emergencies and special projects - traveling crews with specialized equipment could assist MCWD
- Watershed management and pollution control programs upstream of MCWD to improve raw water quality
- Materials management – cooperative procurement could lower material, equipment and tool prices. A cooperative warehouse could provide better availability of critical, but rarely used items
- Information systems – cooperative billing, customer service and accounting systems could improve efficiency, customer responsiveness and financial integrity