

MARSHALL MUNICIPAL UTILITIES
ANNUAL REPORT
2014/2015

TO: Board of Public Works
City Council

April 14, 2016

This annual report summarizes some of the key issues and many of the accomplishments and improvements to Marshall's publicly owned utility systems during the fiscal year ending September 30, 2015.

It is our responsibility to provide for the current needs and to plan for the future needs of Marshall's citizens. We must never forget that Marshall's citizens are the owners of MMU. The citizens of Marshall can be assured that the employees of MMU are committed to continuing the efforts necessary to fulfill our mission, which is to:

Provide reliable utility service for our owners at the lowest reasonable cost; maintain and operate facilities that will assure safe, dependable electricity, potable water and wastewater treatment, giving due consideration to conservation and environmental impacts; plan for the future to assure adequate resources with progressive but sound economic reasoning.

The following bulleted points provide a glimpse of some of the accomplishments and operations during this past year.

Electric Distribution

The following is a summary of the accomplishments of the Electric Distribution department for the fiscal year 2014-2015.

- * Most of our efforts were focused on increasing the capacity to the Industrial Park area and new CMA Grain Handling Facility. We replaced the existing 1/0 aluminum conductor on feeder 14 with 336.4 aluminum. This will triple the capacity to this area; total project length was approximately 8,100 feet.
- * The new CMA grain handling facility includes a rail spur that crosses under our 161kv transmission line with 13.2kv underbuilt. The 13.2kv underbuilt had to be raised to provide clearance for the new rail spur. PAR Electric was contracted to complete this work and finished in August. While they were here they also replaced a wooden transmission pole on the section between Southeast and Norton. The pole had a rotten section at ground level.
- * Work began on the North Side of the Fairgrounds for the MC Power Solar Farm interconnect. The new Utility Scale Solar Farm will have a nameplate capacity of 3.2mw and should produce around 2.7 mw peak. It will be connected at a point where it can feed into either Southeast or West Substations. Most of the energy produced will be consumed on the distribution system

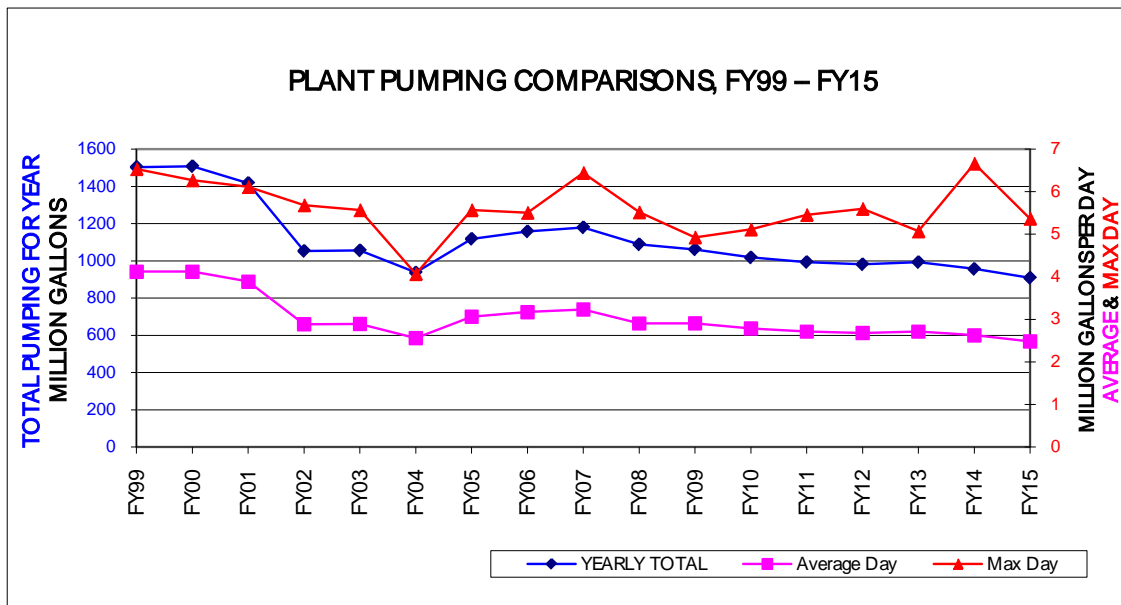
before back feeding into the subs. The work performed this year was mostly planning with most of the work taking place during the 2015-2016 FY.

Miscellaneous:

- Replaced/Installed 53 utility poles
- Switched to new electronic management system for locates, switch was mandatory.
- Repaired/replaced approximately 400 street and area lights.
- Upgraded service to North Street Pump station from 4.16kv feed out of Power Plant to 13.2kV feed from Miami #2.
- Removed 4/0 copper underbuilt on North Street and N. Miami. Conductor was used for old 4.16 kv and switched to 13.2 during conversion. Consolidated onto 1 13.2kV circuit.
- Rebuilt section of line on W. Boyd for new service to Con Agra Dry Storage Warehouse.
- Electricians assisted Power Plant on Unit #6 generator repair.

Water Treatment Plant

- * The plant produced 907,800,000 gallons of water, down approximately 5% from the 955,700,000 gallons produced in FY14. We applied approximately 1,900 tons of lime sludge to area farmland.



- * We published and mailed the annual consumer confidence report for 2014.
- * Continuing the project to reduce the levels of trihalomethanes and haloacetic acids in the water. The plans are approximately 50% complete.
- * We violated the maximum contaminant level (MCL) for the third quarter of calendar 2014; public notice was required and was completed in December 2014. The MCL was exceeded again for the third quarter of 2015 (ending September 30). Public notice is ongoing.

Wastewater Treatment Plant

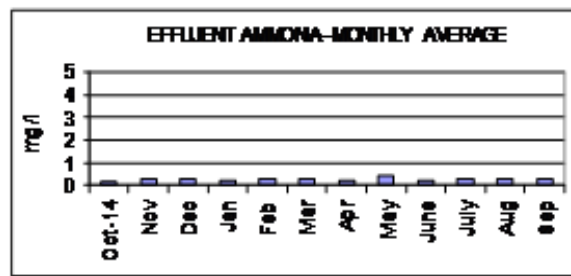
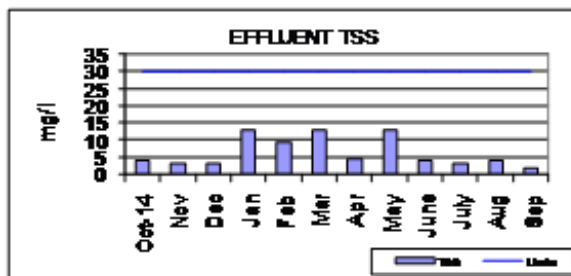
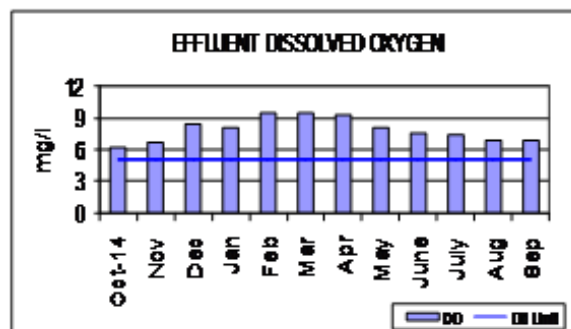
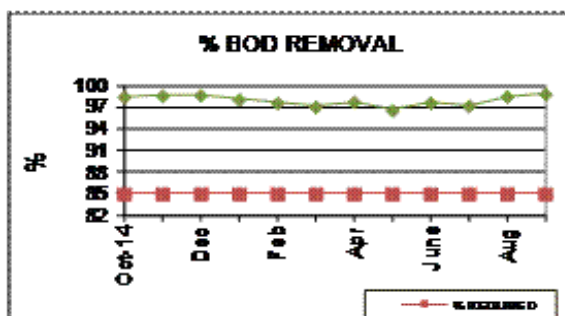
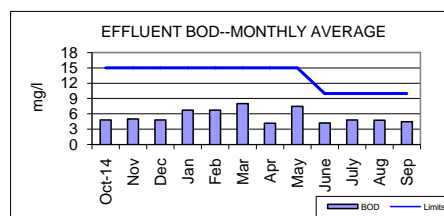
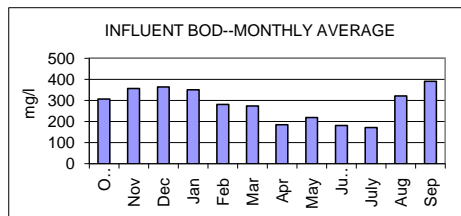
- * The plant treated 1,041,000,000 gallons of wastewater, an approximate 34% increase from the 779,000,000 gallons for FY14. We applied roughly 380 tons of sludge to local farmland.

- * Following are charts showing the wastewater treatment plant's effluent sampling results for FY14 compared against the effluent limits set by DNR.

BOD – biochemical oxygen demand

TSS – total suspended solids

mg/l – milligrams per liter or parts per million



Environmental

- * Filed the annual toxic chemical release inventory (TRI) report with EPA and the annual Tier II reports with the Missouri Emergency Response Commission, the Saline and Pettis County LEPCs, and local fire departments.

Electric Production

- * Our largest project in 2014/2015 was the repair of our Unit #6 gas turbine generator. On September 17, 2014 while operating the unit, a fault occurred in the generator. Upon inspection, we discovered that the generator stator winding had failed. Our crews disassembled the unit so we could get a closer evaluation. We determined through inspection and electrical testing that

the generator stator would need a complete rewind. EthosEnergy was selected to perform the rewind project as the O.E.M. The generator stator was rewound on site. The generator rotor was sent to the EthosEnergy shop in New Mexico for repair. We provided in-house labor to perform the disassembly and reassembly of the unit with support from a technical field advisor from EthosEnergy. In June 2015, the project was completed. The unit was restarted and put back into service without any issues. Fortunately, our insurance carrier covered the majority of the costs, which was well over one million dollars.

- * In 2015, the five year renewal for our power plant operating permit came due. We hired Schriefer Engineering as a consultant to help us with new provision in the permitting process. One of the major issues that is being incorporated into the new permit is the status change from a Major Source of HAPS (Hazardous Air Pollutant) to an Area Source. The change for us means that we can still operate Units #4 and #5 on coal with a limitation. This limit is approximately 16,000 tons of coal burned per year. If we had not made this change we would not have been able to burn coal in these units after January 2016. The permit has still not been finalized and is an ongoing process. DNR has sent our revised draft to the EPA for any final comments. We hope to have the permit completed by the end of 2015.
- * Unit #10 and #11 fall under the NESHAP RICE rules which requires a 70% reduction of CO. They have been retrofitted with new oxidation catalyst in the exhaust stacks. This was completed in 2011. Retesting is required every three years for compliance. In October 2014, we attempted to retest the engines without success. We discovered a problem with the gasket material which seals the catalyst element. We corrected the problem and both engines successfully passed the compliance test in January 2015.
- * Unit#5 was operated for approximately four weeks in January/February 2015. The main reason was to burn up a stockpile of coal which was starting to get hot and catch fire in the coal yard. The unit did operate very well. It also gave us an opportunity to do some much needed training for our operations personnel.
- * We also extended our coal agreement with Knighthawk Coal Company which runs through 2018.
- * We are in the process of changing out the batteries and battery charger for Unit #6. The batteries provide control power and DC power to associated equipment.
- * In 2015 we also installed a new safety handrail system on the upper roof above Unit #5 boiler.
- * These are some of the projects and accomplishments that were completed in 2014/2015.

Underground Facilities

- * Approximately 6,600 feet of sewer main was reconditioned with cured-in-place pipe (CIPP) method. This type of trenchless main replacement consists of a flexible, resin saturated fabric liner that is installed inside the old main. The liner takes the shape of the old pipe and is cured with hot water or steam. There were different sections throughout the collection system. In some of the areas the mains were located in backyards in an easement. To replace the mains in these areas by the traditional open excavation method would take many months to complete. The main liner should last for 59 years and possibly up to 100 years. This was the eighth year that repairs were made to the collection system using the CIPP method.
- * A six inch water main project was completed on Slater Street, Brunswick Avenue west of Commercial Drive. Approximately 800 feet of new main was installed to replace the old six inch cast iron pipe. The old main had failed many times in the past years.

- * A six inch water main project was also completed for the new Fox Creek Villas complex. Approximately 1,300 feet of new main, several control valves and three new fire hydrants were installed. The water main was installed with a loop system, which provides better fire protection. Separate water services were installed for each unit in the complex.
- * Improvements and maintenance of the wastewater collection system is an ongoing process. The 6 inch main on North Jefferson Avenue, north of the railroad tracks were replaced with an 8 inch PVC pipe. New precast manholes replaced the old brick manholes. There were approximately 900 feet of new main and five new manholes in this project.
- * Inspection and cleaning of the sewer mains continue throughout the collection system. Water from a high pressure sewer cleaner was used to clean over 26 miles of sewer main. The sewer camera was used to videotape over 17 miles of sewer mains. These video inspections reveal areas that need to be repaired, totally replaced or reconditioned, as well as identifying other potential problems in the collection system.
- * MMU personnel have also made 50 sewer main repairs this last year. There were 55 new water services installed, 11 main breaks in the distribution system, and 14 main breaks on the transmission line between the Water Treatment Plant near Malta Bend and the reservoirs at the Power Plant.
- * The new proposed railroad loop for Central Missouri Ag required the water transmission mains and natural gas main to be relocated and lowered. The water lines were incased in a steal pipe under the proposed track. In one area the water lines were moved to a lower elevation. The natural gas line was relocated and lowered at two locations for the proposed track. This work was completed by outside contractors.

In fiscal year 2015, a total of 6 people were hired. All 6 people were hired to fill vacancies created by departing personnel. During the year, three people were hired for Administrative Services (Meter Reader, Network Technician, and two Customer Service Representatives), and one for Environmental Services (Water Treatment Plant Operator). Additionally, an Executive Secretary was hired. At year's end, we have seventeen vacancies created by personnel who have departed or retired. Sixteen of these vacancies will remain unfilled indefinitely.

The information and statistics above are intended to give you a feel for what was accomplished this last year, but these statistics do not begin to convey the importance of the utility services provided to the citizens of Marshall by the citizens of Marshall. This local ownership yields many hometown advantages, not the least of which is having the Business Office right here in town and having decisions made by citizen owners.

Kyle D. Gibbs
General Manager

KDG/jm

TABLE A

Free Services
Fiscal Year 2014/15

WATER:

Fire Hydrant Maintenance	\$	4,693
Depreciation of Fire Hydrants	\$	5,967
Labor and Material Donated	\$	<u>319</u>
	\$	10,979

ELECTRIC:

Street Lighting Energy	\$	162,007
Street Lighting Maintenance	\$	26,084
Depreciation of Street Lighting	\$	19,541
Labor and Material Donated	\$	18,837
Marshall-Saline Development Corp.	\$	<u>0</u>
	\$	226,469

TOTAL \$ 237,448

Payments in Lieu of Taxes

Water Transfers to City General Fund	\$	164,722
Electric Transfers to City General Fund	\$	<u>1,719,840</u>
	\$	1,884,562

TABLE B

Operating Statistics

	<u>2010-2011</u>	<u>2011-2012</u>	<u>2012-2013</u>	<u>2013-2014</u>	<u>2014-2015</u>
Average # Elec. Customers	5,920	5,910	5,913	5,920	5,933
Average # Water Customers	4,942	4,929	4,940	4,947	4,933
Average # Internet Customers	354	491	743	1,075	1,456
Average Residential Bill (monthly)					
Water	\$23.85	\$25.97	\$25.31	\$26.82	\$27.48
Electric	\$95.53	\$90.19	\$86.42	\$93.04	\$92.91
Wastewater	\$28.79	\$29.97	\$36.15	\$37.99	\$37.84
Uncollectables (Bad Debts)	\$64,888	\$63,877	\$56,452	\$67,187	\$60,930
Customers Assisted MVCAA	520 \$55,760	559 \$72,560	394 \$39,947	420 \$59,924	456 \$49,956
Other *	\$9,665	\$9,589	\$11,608	\$17,868	\$15,430
Peak Day Water (on production) (1,000,000 gal.)	7/29 5.55	8/2 5.60	8/8 5.07	4/8 6.66	8/13 5.37
Water Sold (1,000,000 gal.)					
Residential	235	257	231	229	209
Commercial	75	77	65	70	68
Small General	47	50	44	42	44
Large General	67	78	73	55	48
Industrial	256	247	243	247	234
Wholesale	<u>232</u>	<u>239</u>	<u>262</u>	<u>243</u>	<u>239</u>
TOTAL	912	948	918	886	842
Total Annual Water from Wells (1,000,000 gal.)	961	1,009	1,019	970	927
Water % Losses	8.2	6.05	9.91	8.66	9.17
Tons Waste Lime (Land Applied) # Acres	1,400 690	1,920 850	5,500 1,300	486 180	2300 1040

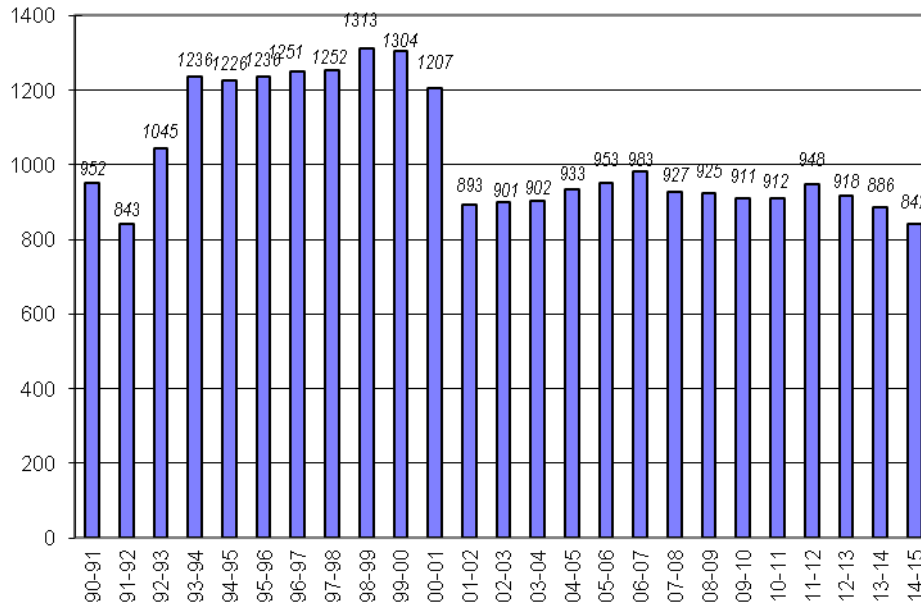
* Includes churches and Salvation Army.

TABLE B - Operating Statistics (cont.)

	<u>2010-2011</u>	<u>2011-2012</u>	<u>2012-2013</u>	<u>2013-2014</u>	<u>2014-2015</u>
Peak Day Wastewater (1,000,000 gal.)	12/24 11.4	3/23 11.6	4/18 14.01	4/4 6.41	7/9 12.03
Total Annual Wastewater (1,000,000 gal.)	878	758	1,213	779	1057
Tons Wastewater Sludge (Land Applied)	894	995	414	806	384
Acres	500	1,030	614	1,303	643
Golf Course Irrigation Water (1,000,000 gal.)					
Effluent	2.4	0	0	0	0
Potable	0	12,039	18,444	16,870	?
Peak Load KW	41,944	38,200	38,600	37,800	38,351
Date	8/2	8/12	7/18	8/25	7/28
MWH sold					
General Lighting	143	141	158	154	138
Residential	52,262	49,904	48,528	50,117	48,121
Commercial	12,500	13,283	12,406	15,127	14,497
Small General	20,250	18,655	17,942	18,808	17,376
Large General	26,732	26,222	25,879	25,342	22,293
Industrial	68,897	68,527	71,225	68,872	70,222
Interruptible	56	44	42	39	37
Area / Street Light	0	0	0	0	632
TOTAL	180,840	176,776	176,180	178,459	173,316
Total MWH Purchased	190,146	186,898	185,925	188,373	185,042
Total MWH Generated *	22,547	2,007	6,261	166	4,527
% Losses	4.89	5.42	5.24	4.92	6.34
Natural Gas Burned (MCF)	16,882	21,051	9,678	1,944	4,368
#2 Fuel Oil Burned (gal.)	6,935	8,628	3,260	4,470	1,680
Coal Burned (tons)	14,230	5,089	3,488	0	2,896
Paper and Cardboard Sold (tons)	741	652	899	1,051	843

* Beginning in June 2006, all energy generated is sold to MoPEP.

WATER SALES (MIL GAL)



ELECTRIC SALES (MWH)

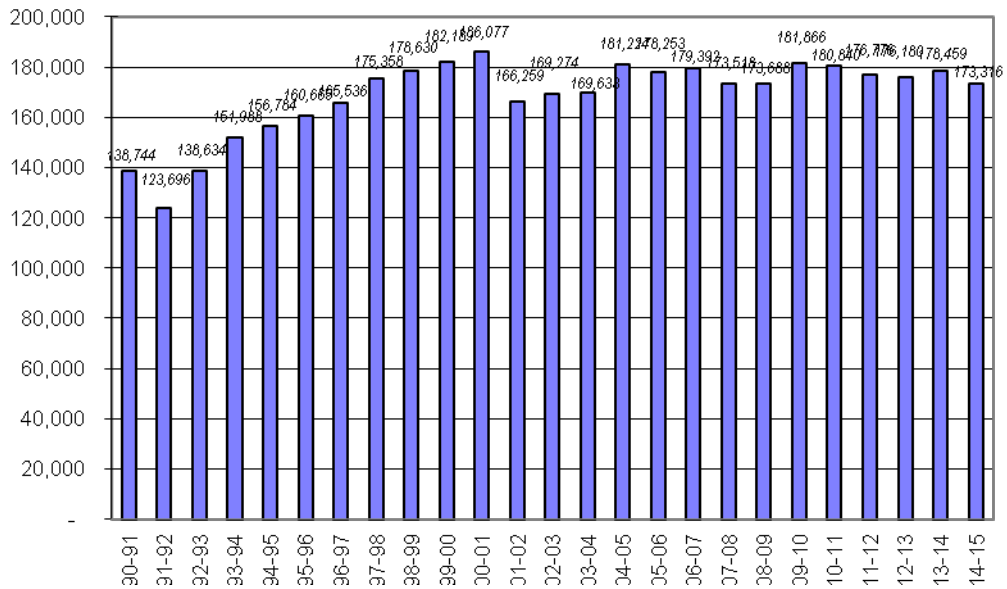


TABLE C

Cash Transaction Report
Fiscal Year 2014/15

	<u>WATER</u>	<u>ELECTRIC</u>	<u>SEWER</u>	<u>INTERNET</u>	<u>GAS</u>	<u>TOTAL</u>
Fund Balance (10/1/ 15)*	\$1,128,459	\$15,204,211	\$2,604,380	\$(16,084)	\$2,217,773	\$21,138,739
Revenues	\$3,964,109	\$21,304,100	\$2,942,972	\$653,353	\$412,583	\$29,277,117
Disbursements	\$3,267,532	\$19,159,654	\$2,153,665	\$730,805	\$252,997	\$25,564,653
Net Transfers		\$ 380,000	\$(480,000)	\$100,000		
Fund Balance (9/30/ 15)*	\$1,825,036	\$17,728,657	\$2,913,687	\$ 6,464	\$ 2,377,359	\$24,851,203
Investments (9/30/ 15)	\$ 500,000	\$12,992,744	\$1,244,748	0	\$ 1,997,979	\$16,735,471

* Includes Investments

TABLE D

Wastewater Debt
(Subject to interest rate change semi-annually)

Estimated payments due for year ending:

	Principal & Interest
9/30/16	\$483,164
9/30/17	\$482,776

TABLE E-1

Cash and Investments
9/30/15

	<u>Total</u>	<u>Cash</u>	<u>Investments</u> <u>(at cost)</u>
WATER:			
Operating	\$ 611,869	\$ 611,869	\$ 0
Water Plant	\$ 1,254,272	\$ 754,272	\$ 500,000
Insurance Reserve	\$ 0	\$ 0	\$ 0
Equipment Reserve	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>
	\$ 1,866,141	\$ 1,366,141	\$ 500,000
ELECTRIC:			
Operating	\$ 4,552,026	\$ 4,552,026	\$ 0
Consumer Deposits	\$ 540,198	\$ 540,198	\$ 0
Insurance Reserve	\$ 5,000,000	\$ 2,528	\$ 4,997,472
Equipment Reserve	<u>\$ 8,228,233</u>	<u>\$ 232,961</u>	<u>\$ 7,995,272</u>
	\$ 18,320,457	\$ 5,327,713	\$ 12,992,744
WASTEWATER:			
Operating	\$ 645,626	\$ 645,626	\$ 0
Inflow and Infiltration	\$ 1,417,109	\$ 672,235	\$ 744,874
	\$ 500,000	\$ 126	\$ 499,874
Main Replacement	\$ 360,890	\$ 360,890	\$ 0
Equipment Reserve	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>
	\$ 2,923,625	\$ 1,678,877	\$ 1,244,748
INTERNET			
Operating	\$ 35,367	\$ 35,367	\$ 0
NATURAL GAS			
Operating	\$ 374,381	\$ 374,381	\$ 0
Equipment	<u>\$ 2,003,342</u>	<u>\$ 5,364</u>	<u>\$ 1,997,978</u>
	\$ 2,377,723	\$ 379,745	\$ 1,997,978

TABLE E-2
 (Detail of Table E-1)
Investments 9/30/15

	<u>Cost</u>	<u>Face Value</u>	<u>% Yield</u>
WATER (Bank Midwest):			
CD China NY 10/29/15	\$ 250,000	\$ 250,000	0.550
CD Columbus 10/31/15	<u>\$ 250,000</u>	<u>\$ 250,000</u>	0.450
	\$ 500,000	\$ 500,000	
ELECTRIC (Wood & Huston):			
Treasury Bill Maturing 11/5/15	\$ 2,998,938	\$ 3,000,000,	0.071
Treasury Bill Maturing 12/11/15	\$ 4,997,472	\$ 5,000,000	0.101
Treasury Bill Maturing 1/21/16	\$ 2,997,953	\$ 3,000,000	0.137
Treasury Bill Maturing 2/4/16	<u>\$ 1,998,382</u>	<u>\$ 2,000,000</u>	0.161
	\$ 12,992,745	\$ 13,000,000	
WASTEWATER (Community Bank):			
CD - Community Bank 12/17/15	\$ 245,000	\$ 245,000	0.15
Treasury Bill Maturing 1/21/16	<u>\$ 999,748</u>	<u>\$ 1,000,000</u>	0.04
	\$ 1,244,748	\$ 1,245,000	
NATURAL GAS (Wood & Huston)			
Treasury Bill Maturing 2/26/16	\$ 1,997,978	\$ 2,000,000	0.07
	<u>\$ 16,735,471</u>	<u>\$ 16,745,000</u>	

(Organization Chart)