Dedicated to Hai Tran
lab technician (NPDES)
2/15/77 – 4/26/13
A Year of Change

Message to the Community

It is a great pleasure to present to you the 2013 Johnson County Wastewater (JCW) Annual Report. Each year we prepare a summation of our business and highlights of our accomplishments for your review online.

Perhaps the change which has had the greatest impact on our business was the inclusion of the capital portion of wastewater charges as a fixed Equivalent Dwelling Unit (EDU) rate on the user charge bill as a separate line item titled Capital Charge. Prior to 2013, this charge appeared as a line item titled WASTEWTR CAP on the annual property tax statement. The capital cost was a uniform rate; all single-family residences were charged the same capital amount, regardless of the impact they had on the system.

In 2013, the Johnson County Board of Commissioners adopted a new user charge resolution which allowed the department to complete a multi-year conversion of the billing method to a unified rate model in January 2014. The amount customers are billed varies from one customer to the next as it is based on their Average Winter Water Usage (AWWW). Those who have a greater impact on the sanitary sewer system will now pay more than those who contribute less. This also means that the current wastewater bills look similar to other utility bills such as water, gas, and electric, and is now in line with industry best practices.

The current JCW charge reflects both the costs to operate its system and to invest/ reinvest in the capital improvements necessary to operate the system.

The department literally saw the proverbial “daylight at the end of the tunnel” when on August 19, 2013, tunneling was completed for the Mill Creek Regional Plant Effluent Improvement Project. The tunnel, which is about 9,800 feet long and 124 inches in diameter, is being lined with 96 inch diameter pipe to carry treated effluent by gravity from the plant to the existing discharge on the Kansas River. The plant effluent is currently pumped to the Kansas River. The existing effluent pump station will be phased out at the completion of this project which is expected in late 2014. Please see Page 5 for the complete story about this project and photographs. The excavation began its underground journey through shale in November 2012, more than 100 feet below ground. It crossed under railroad tracks and Interstate 435 and was, for the most part, below Holliday Drive – all unnoticed by the public.

The Customer Relations Division witnessed a welcome return to pre-economic downturn permit issuance numbers. Slightly more than 44 percent additional permits were issued for connection to the sanitary sewer than in 2012; making 2013 the best year for permit issuance since 2006. JCW was recognized in July at the National Association of Clean Water Agencies (NACWA) for its outstanding effluent discharge permit compliance records in the 2012 calendar year and was presented with two Platinum Peak Performance Awards which honor treatment works that have completed at least five years of complete and consistent National Pollutant Discharge Elimination System (NPDES) permit compliance. Two treatment facilities earned Gold Peak Performance Awards which honor treatment facilities that have achieved 100 percent compliance with the NPDES permit for 2012. And finally, two treatment facilities earned Silver Peak Performance Awards which recognize treatment works that received no more than five NPDES permit violations in 2012. Of a possible 2,198 NPDES violations in 2012, JCW met 99.5 percent of the discharge standards.

These are just a few of the matters of business we conducted in 2013. Please accept my invitation to read this report and learn more about Johnson County Wastewater’s efforts to protect, serve, and enhance our community’s exceptional quality of life.

John P. O’Neil
JCW’s General Manager

What We Do

Johnson County Wastewater (JCW) is responsible for the safe collection, transportation, and treatment of wastewater generated by residential, industrial, and commercial customers.

Mission Statement

Protecting our environment
Serving our customers
Enhancing our communities

Vision Statement

Johnson County Wastewater seeks to be locally respected and nationally recognized for leadership and excellence in:

- Water quality
- Customer service and stakeholder satisfaction
- Responsible and sustainable use of resources
  - Natural
  - Human
  - Financial

We pride ourselves on maintaining a positive work environment that:

- Provides training and education.
- Empowers employee productivity, innovation, and transfer of knowledge.
- Emphasizes safe work habits and practices.

What We Believe

Core Values

Creativity We encourage employee innovation, seek continuous improvement, and embrace learning opportunities.

Humor We will laugh with one another, use humor in a sensitive manner, and recognize and celebrate our accomplishments.

Respect We value our diverse backgrounds and cultures, each other’s contributions, and ideas from various perspectives.

Integrity We demonstrate trustworthiness by being truthful, openly sharing information, and taking responsibility for our actions.

Service We embrace public service as a personal commitment of our talents to the benefit of the people we serve.

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Above ground, there are more than 5,600 assets at six major treatment plants, one small lagoon facility, and 31 pump stations with a replacement value estimated at $375 million.

Underground assets are even more valuable, with an estimated replacement value of more than $2 billion. There are more than 2,200 miles of sewer line pipe, including approximately 66,000 manholes, approximately 23 miles of active low-pressure sewers, and 42 miles of active force mains. The miles of sewer lines would span the distance between Kansas City, Missouri, and Washington, D.C. and back!

Johnson County Wastewater provides sanitary sewer service to more than 500,000 people.

In 2013, Johnson County Wastewater’s active account base of 137,031 was composed of:
- 6,196 commercial accounts (4.52 percent)
- 118 industrial accounts (0.09 percent)
- 16,866 multi-family accounts (12.31 percent)
- 113,851 single-family residential accounts (83.08 percent)

JCW annually processes an average of 17.5 billion gallons of wastewater. The total is equivalent to filling Kansas City’s Sprint Center nearly 84 times.

The wastewater system covers a service area of more than 172 miles and 16 cities.

JCW operates a total treatment capacity of 63.87 million gallons per day.

JCW had the lowest rate in the Kansas City Metropolitan Area in 2013 (see graph on Page 7).

The combined revenue requirement increase for 2013 was seven percent, which resulted in an increase of $1.80 per month for the median residential customer.

The total number of possible National Pollutant Discharge Elimination System (NPDES) violations for 2013 was 2,569. JCW recorded a total of 10 plant violations, resulting in a 99.6 percent compliance rate.

JCW issued 1,607 permits in 2013 (343 commercial and 1,264 residential). This is an increase from 2012 when 1,116 permits were issued.

In 2013, the Projected Connection Fee Revenue was $2,955,000. The department actually ended the year with more than double that amount as the Actual Connection Fee Revenue was $6,985,114.

Treatment accomplishments:
- 17,501.06 million gallons of flow treated in 2013
- 100 percent compliance on solids disposal

Collection accomplishments:
- 609.9 miles of sewer line cleaned
- 15 overflow and seven wet weather backups in 2013
- 17 odor complaints
- A total of 13 dry weather backups.
  - The department’s annual goal is less than 53/year.

The co-generation facility at the Douglas L. Smith Middle Basin Wastewater Treatment Plant produced 7,014,000 kWh of green power (power produced off the grid) in 2013.
The People of Johnson County Wastewater

The Johnson County Board of Commissioners

Johnson County Wastewater (JCW) operates as a department in Johnson County government, reporting directly to the deputy county manager under the direction of the county manager and the Board of County Commissioners. The County Commissioners hold their regular business sessions, open to the public, every Thursday at 9:30 a.m., except on observable holidays, in the Board Hearing Room, 111 South Cherry, Third Floor, Olathe, Kansas.
Johnson County Wastewater Leadership

The Johnson County Wastewater Leadership Team members are:
(front row left to right) Tony Holt, director of Water Quality Lab; Kurt Winters, director of Operations and Maintenance; and John O’Neil, general manager.
(Back row left to right) Susan Pekarek, chief engineer; Lisa Davis, director of Customer Relations; Lori Sand, director of Communications; and Beth Brandel, director of Business Operations and Planning.

JCW News and Recognition

Johnson County Wastewater Shines in 2012 Peak Performance Awards Program

Each year the National Association of Clean Water Agencies (NACWA) recognizes public wastewater facilities for outstanding compliance with National Pollutant Discharge Elimination System (NPDES) permit limits. This recognition program consists of Peak Performance Awards in three categories – Platinum, Gold and Silver.

Johnson County Wastewater was recognized in July at the NACWA national conference held in Cincinnati for its outstanding compliance records in the 2012 calendar year and was presented with two Platinum Awards. In total, JCW earned six Peak Performance awards.

Two treatment facilities earned Silver Peak Performance Awards which recognize facilities that received no more than five NPDES permit violations in 2012.

Silver Peak Performance Award honorees are:
• Douglas L. Smith Middle Basin Wastewater Treatment Plant
• Myron K. Nelson Plant

Two treatment facilities earned Gold Peak Performance Awards which honor treatment facilities that have achieved 100 percent compliance with the NPDES permit for 2012.

The Gold Peak Performance Award honorees are:
• New Century AirCenter Plant
• Tomahawk Creek Plant

And finally, JCW received two Platinum Peak Performance Awards which honor treatment works that have completed at least five years of complete and consistent NPDES permit compliance.

The county’s Platinum Award recipients are:
• The Mill Creek Regional Plant at 20001 West 47th Street in Shawnee for six years of permit compliance, and
• The Blue River Main Plant at 2523 West 151st Street in Overland Park for seven years of permit compliance.

Of a possible 2,198 NPDES violations in 2012, JCW met 99.5 percent of the discharge standards.
Johnson County Wastewater Project Continues to Garner Awards

Johnson County Wastewater was awarded the prestigious NEHA Stainability Award for the co-generation project at the Douglas L. Smith Middle Basin Treatment Facility by the National Environmental Health Association (NEHA) at the 2013 Annual Educational Conference and exhibition in Washington, D.C.

The NEHA Stainability Award recognizes any organization, business, association, individual, or NEHA member who is solving environmental challenges by using innovative and environmentally sustainable practices.

The award criteria were: innovation, stainability, and/or partnerships, superior practices, commitment and leadership in pursuit of environmental achievement, transferability to other uses, and funding sources.

The project was designed to:
1. increase the solids handling capacity of the Douglas L. Smith treatment plant
2. use methane from digestion of biosolids and fats, oil and grease from restaurants to generate electricity
3. reduce the county’s carbon footprint and
4. reduce utility costs for the wastewater department.

Johnson County Wastewater is one of the biggest consumers of electricity in Johnson County. The cogeneration project generates enough electricity to power half of the power needs of the entire Douglas L. Smith Treatment plant, which is the one of the largest power users in the JCW system. In 2012, based on adjustments for rate changes and changes in use patterns, JCW saw a cost avoidance of approximately $250,000 per year through on-site power generation. The project makes beneficial use of methane and restaurant by-products that were previously treated as wastes.

The $18.3 million project was funded through the American Recovery and Reinvestment Act (ARRA), and nearly 50 percent of this amount was eligible for principal forgiveness. The U.S. Environmental Protection Agency was the lead federal agency on the project, and the funds were administered by the Kansas Department of Health and Environment.

Major JCW Project Being Completed Underground

The Mill Creek Regional Plant Effluent Improvement Project, designed by Black & Veatch, reached a milestone event as excavation of the tunnel was completed on August 19, 2013. The tunnel, which is about 9,800 feet long and 124 inches in diameter, is being lined with 96 inch diameter “Hobas” pipe to carry treated effluent by gravity from the plant to the existing discharge on the Kansas River. The plant effluent is currently pumped to the Kansas River. The existing effluent pump station will be phased out at the completion of this project.

The tunnel boring machine (TBM) began its underground journey through shale in November 2012, more than 100 feet below ground. It crossed under railroad tracks and Interstate 435 and was, for the most part, below Holliday Drive - all unnoticed by the public. The contractor, S.J. Louis Construction Co. of Texas, worked two 10-hour shifts a day, and in their best week the TBM advanced 550 feet. Crews extended utilities as the TBM advanced. Those utilities included a 4,160 volt power cable, water supply, wastewater return, compressed air, train tracks, lighting, and ventilation ducting.

The TBM, which resembled a 300-foot-long earthworm, was then removed from the tunnel. One of the heaviest components, the cutter head, weighing 40,000 pounds was hoisted up through the exit shaft. The cutter head had been subjected to more than 700,000 pounds-foot of torque, and was driven by four electric motors, each with a pinion gear driving a ring gear behind the cutter head.

When the project is completed in late 2014, water treated at the Mill Creek Regional Wastewater Treatment Plant will flow by gravity to the Kansas River without the cost of electrical power or pump repair and replacement costs.
In 2013, Johnson County Wastewater underwent an organizational restructure. One result was the formation of the Asset Management, Planning, and Public Projects Division. This division combines the planning and public projects functions of new development with the asset management function for the entire wastewater organization, as well as the functions delegated to the Chief Engineer.

The planning and public projects group provides information to the public and manages projects related to the consolidated main sewer district (CMSD). The Asset Management Program is the business framework that focuses on minimizing the lifecycle cost of asset ownership while meeting a desired level of service. It is especially important for JCW to manage its assets wisely since they represent an investment of more than $2 billion.

**Division Highlights**

- Several CMSD construction projects were completed and new or delayed projects were initiated this year:
  - Cedar Creek 4, Contract District 1 construction – provides approximately 8,600 linear feet of sewer extended west from the Olathe South Cedar Creek Interceptor to serve the Midwest Commerce Center (Coleman) at 167th and Clare Road.
  - CMSD project Mill Creek No. 9, Contract 2 – will provide sewer service to developed and undeveloped areas. The district is located near 119th Street and Woodland Road.
  - Blue River No. 21 sewer district initiated construction – will serve a 1,300-acre area extending from 175th Street to 195th Street and from the state line west to Mission Road and is expected to be complete by the end of 2014.
  - Little Bull Creek No. 1, Lateral Sewer District No. 2 initiated construction – a low pressure sewer district located near 180th Street and Lone Elm Road. The project will bring sanitary sewer service to an area currently served by onsite sewage disposal systems. This project received a low interest loan from the Kansas Water Pollution Control Revolving Loan Fund, including 40 percent principal forgiveness.

- Asset Management principles and practices are an active part of the daily operations. As Johnson County continues to do more with less, JCW looks at new ways to provide levels of service that meet its strategic goals in the most cost effective manner possible.
Business Operations and Planning (BOP) provides vital support services, including finance, accounting, budgeting, technology, human resources, and payroll to the other divisions of JCW. This division is the caretaker of JCW’s Strategic Business Plan, and its employees are involved in many ongoing projects aimed at automating and improving processes at JCW to enhance the mission of protecting our environment, serving our customers, and enhancing our communities.

Division Highlights

- The Business Operations and Planning Division continued to effectively support JCW with reduced staffing levels.
- Staff successfully completed preparations for January 2014 implementation of the combined rate bill, including amending the JCW charter.
- Continued improvements were made to the network environment, data handling, and storage to improve efficiency and effectiveness.
- A cost-effective technology equipment replacement program was implemented.
- Significant website improvements were implemented, including a shift to Johnson County’s new website platform.
- Eliminated the vacant land charge and prepared to move to the system availability charge, which is based on a per acre cost.

Metro Rate Comparison

<table>
<thead>
<tr>
<th>Service</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johnson County Wastewater</td>
<td>$25.25</td>
<td>$25.25</td>
</tr>
<tr>
<td>City of Independence</td>
<td>$26.47</td>
<td>$26.47</td>
</tr>
<tr>
<td>City of Olathe</td>
<td>$29.65</td>
<td>$29.65</td>
</tr>
<tr>
<td>KCK</td>
<td>$30.32</td>
<td>$30.32</td>
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<tr>
<td>NACWA National Average</td>
<td>$34.19</td>
<td>$34.19</td>
</tr>
<tr>
<td>City of Lee’s Summit</td>
<td>$29.24</td>
<td>$29.24</td>
</tr>
<tr>
<td>KCMO</td>
<td>$34.55</td>
<td>$34.55</td>
</tr>
</tbody>
</table>

2013
Monthly charge based on 148 gallons per day.

Kim Wasko, executive assistant (left), and Debbie Lage, project specialist, are both team members of the Business Operations and Planning Division.

Marvin Sommerfeld, systems technology manager, and Karen Sorensen, internet projects coordinator, were both instrumental in the county’s conversion to a new website.
Customer Relations Division

The Customer Relations Division provides JCW with a single source or center for all key customer service activities regardless of customer type, service, or informational need.

Division Highlights

- Witnessed a welcome return to pre-economic downturn permit issuance numbers. Slightly more than 44 percent additional permits were issued for connection to the sanitary sewer than in 2012; making 2013 the best year for permit issuance since 2006.

- With the decrease in staffing precipitated by the economic downturn, existing staff have worked many extra hours to assist with customer demand. We have been allowed to fill most of the positions that were open and training of new staff is ongoing.

- Industrial Pretreatment Program highlights included:
  - Conducted 29 on-site inspections of Significant Industrial Users (SIUs) located in Johnson County.
  - 20 of the regulated SIUs achieved 90 percent or better compliance with their Discharge Permit parameters and will receive the JCW Environmental Excellence Award.

- Several process improvements were implemented to increase the operating efficiency of the Industrial Pretreatment Program.

- To increase transparency and bring JCW in line with the best practices of a true utility, JCW removed the Equivalent Dwelling Unit (EDU) capital charge from the tax bills of most property owners and placed it on the customers’ user charge bills as a capital charge. Prior to 2013, wastewater billing statements only included operating user charges.

- JCW introduced another self-help option. The Customer Self Service Portal (CSS) went live in January and provides customers with the ability to manage their wastewater accounts online and at their convenience.

- Successfully met billing configuration deadlines in preparation to eliminate the fixed EDU capital charge so that capital and operating costs can be recovered in 2014 through a unified rate model based on a fixed service charge and a variable volume charge.

Customer Relations Division staff members include (left to right): Lu Bronson – commercial/industrial customer liaison, Cynthia Williams – billing and permits operations manager, Jayne Beemer – permits technician, Twila Smith – permits technician, and Karen Herrington – executive assistant.

Vicki Ingham, customer service representative

Danny Vervynck, engineering technician – surveyor

Customer Relations Division staff members include (left to right): Lu Bronson – commercial/industrial customer liaison, Cynthia Williams – billing and permits operations manager, Jayne Beemer – permits technician, Twila Smith – permits technician, and Karen Herrington – executive assistant.
The Operations and Maintenance Division combines existing infrastructure engineering with all Operations and Maintenance functions. All organization entities involved with the planning, engineering, construction, operations, and maintenance of JCW's existing infrastructure reside in the same division. This enhances efficiencies in communication and fosters cooperation with regard to key business processes such as the Capital Improvement Plan and the implementation of the Asset Management Plan.

Division Highlights

- **Tomahawk Creek WWTP Process Improvements Predesign Study Update**

  The Tomahawk Creek Wastewater Treatment Plant (WWTP) treats wastewater from the Tomahawk Creek watershed, the Indian Creek watershed downstream of the Douglas L. Smith Middle Basin WWTP (Lower Indian Creek), and the Dykes Branch sub-watershed. The plant currently treats a portion of the flow arriving at the plant, with the balance being diverted to Kansas City, Missouri (KCMO) for treatment.

  In response to regulatory drivers with the National Pollution Discharge Elimination System (NPDES) permit, as well as projected rate increases for conveyance and treatment of JCW flows by KCMO, a study was completed in 2013 evaluating various long-term treatment alternatives. The following alternatives were evaluated:

  1) Abandoning the plant and sending all flows to KCMO
  2) Upgrading the plant to meet permit requirements and treating a portion of the flow with the remaining flow to KCMO
  3) Expanding the plant and treating all flows with no flow transported to KCMO.

  Based on analyses including life cycle cost, annual cash flow, non-economic, and cost-benefit, the selected alternative was to expand JCW’s Tomahawk Facility to treat all tributary flows. The plan in 2014 is to initiate a Request for Proposal (RFP) process to select an engineer to begin the initial Project Definition and Permitting phase of a plant which is capability of treating 19 million gallons per day.
Gravity Sewer Asset Management Program

Johnson County Wastewater (JCW) gravity sewer infrastructure consists of approximately 2,200 miles of pipe and 56,000 manholes. The replacement cost of this infrastructure is valued at over $1.7 billion. This represents over 91 percent of the infrastructure owned and operated by JCW. The other 9 percent includes treatment plants, pump stations, and force mains.

JCW has made significant investments in its gravity sewer infrastructure, resulting in improved performance. JCW is now recognized as a high performing utility within the industry. However, as the sewer system continues to age, targeted investments in maintenance, repair, and rehabilitation will be needed to sustain the current level of service.

The purpose of this Asset Management Program is to develop a sustainable, cost effective strategy for managing JCW’s aging gravity sewer infrastructure. This program defines a realistic Implementation Plan for continuous improvement of JCW’s strategies, practices, and procedures. The Implementation Plan directly supports many of the goals defined in JCW’s Strategic Business Plan.

The key accomplishments in the first year (2013) of this ongoing program were:

- Documentation, validation, and refinement of the maintenance and capital reinvestment business decision making logic, including an appropriate risk tolerance threshold that balances level of service and cost goals
- Development and implementation of an automated tool that applies JCW’s business decision-making logic to live data to make decisions and prioritize investments
- Estimation and update of the 10 year capital budget projection for system maintenance and renewal
- Assessment and documentation of current collection system inspection, maintenance, and renewal practices and development of opportunities for continued improvement
- Development of an Implementation Plan to strategically plan, coordinate, and implement continuous improvement over the next few years

This program positions JCW to proactively mitigate risk and address the challenges of managing aging infrastructure in a transparent and cost effective manner.
In summary, the lab produced the following analyses for the PEFTF project:

- 52 ultimate (20 day) CBOD values
- 296 CBOD values
- 343 E. coli values
- 340 ammonia values
- 296 total suspended solids values

Performed custom analysis for a variety of other municipalities, private citizens, and other clients, generating $76,960 in revenue to defray the cost of this laboratory.

Assisted JCW in efforts to produce the highest quality effluent to the local streams by working closely with our partners in Operations and Maintenance to optimize treatment.

NPDES analyses: 14,622
Process control analyses: 9,925
Custom analyses: 4,898
Total annual analyses: 31,818
Total annual sample count: 11,667
**Area Served:** Johnson County Wastewater

1. Blue River Main  
   2523 W. 151st Street  
   Overland Park, KS 66224  
   913-715-8745

2. Blue River No. 4 (Lagoon)  
   188th Street & Lackman Road  
   Spring Hill, KS 66083  
   913-715-8750

3. New Century Air Center  
   50 Leawood Drive  
   New Century, KS 66031  
   913-715-8766

4. Mill Creek Regional  
   20001 W. 47th Street  
   Shawnee, KS 66218  
   913-715-8593

5. Myron K. Nelson Complex  
   4800 Nall Avenue  
   Mission, KS 66202  
   913-715-8790

6. Tomahawk Creek  
   10701 Lee Boulevard  
   Leawood, KS 66211  
   913-715-8760

7. Douglas L. Smith Middle Basin  
   10001 College Boulevard  
   Overland Park, KS 66210  
   913-715-8700

JCW Service Area  
City Boundaries
Tracking the Wastewater

Sewage, which is almost all water, contains material such as chemicals and bacteria. Only a tenth of 1 percent is solid matter.

Through gravity and pumps, sewage is moved through a system of pipes from houses and businesses to a treatment plant.

Hot Spots
Sources of sewage in your home

Wastewater originates from many sources in your home. Here are some of the more common points:

**NOTE:** Storm sewers or drains do not go to treatment plants. Water flows directly into waterways.
2013 Expenditures by Division

Total Operating Fund
$40,162,908

Operations and Maintenance
$31,605,159

- Laboratory $962,741 2.40%
- Customer Relations $3,429,157 8.53%
- Business Operations and Planning $4,165,851 10.37%
- Operations and Maintenance $31,605,159 78.70%
- Collections $6,690,143 21.16%
- Middle Basin $5,115,865 16.20%
- Blue River Plant $2,251,273 7.12%
- Mill Creek $2,190,275 6.93%
- Nelson Complex $3,470,924 11.00%
- Tomahawk Creek $8,711,225 27.56%
- Administration $957,362 3.02%
- Airport $1,074,811 3.40%

Existing Infrastructure Engineering $1,143,282 3.61%
## JCW Statistics: Levels of Service 2012-2013

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<thead>
<tr>
<th>Employee turnover</th>
<th>2012</th>
<th>2013</th>
<th>Increase</th>
<th>% of Increase</th>
<th>Target</th>
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<tr>
<td>Separation of Service</td>
<td>11.58%</td>
<td>11.3%</td>
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<td>—</td>
<td>&lt;10%</td>
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<tr>
<th>Line Maintenance and Rehabilitation</th>
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<th>Increase</th>
<th>% of Increase</th>
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<tr>
<td>Miles of Line Cleaned</td>
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<td>609.9</td>
<td>(36.9)</td>
<td>(5.7%)</td>
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<td>Miles of Line Televised</td>
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<td>69.7</td>
<td>10.7</td>
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<th>2013</th>
<th>Increase</th>
<th>% of Increase</th>
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<td>Percentage of Parameters</td>
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<td>99.6%</td>
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<td>(0.1%)</td>
<td>98%</td>
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<tr>
<td>In Compliance</td>
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<tr>
<th>Sewer Backups</th>
<th>2012</th>
<th>2013</th>
<th>Increase</th>
<th>% of Increase</th>
<th>Target</th>
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<tbody>
<tr>
<td>Dry Weather</td>
<td>14</td>
<td>13</td>
<td>(1)</td>
<td>(7.1%)</td>
<td>53</td>
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<tr>
<td>Wet Weather</td>
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<td>7</td>
<td>7</td>
<td>700%</td>
<td>53</td>
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<th>Response Time on Plan Reviews</th>
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<th>2013</th>
<th>Increase</th>
<th>% of Increase</th>
<th>Target</th>
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<tr>
<td>First Submittals 14 Days</td>
<td>48%</td>
<td>43.5%</td>
<td>(4.5%)</td>
<td>(9.4%)</td>
<td>80%</td>
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<tr>
<td>Re-submittals 7 Days</td>
<td>68%</td>
<td>68.2%</td>
<td>0.2%</td>
<td>0.3%</td>
<td>80%</td>
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<thead>
<tr>
<th>Number of Treatment and Pump Station Work Orders Issued</th>
<th>2012</th>
<th>2013</th>
<th>Increase</th>
<th>% of Increase</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preventive Work Orders</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10-15% of total work orders</td>
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<tr>
<td>Treatment</td>
<td>14,755</td>
<td>13,178</td>
<td>(1,577)</td>
<td>(10.7%)</td>
<td>10-15% of total work orders</td>
</tr>
<tr>
<td>Collections, pump stations</td>
<td>3,627</td>
<td>3,506</td>
<td>(121)</td>
<td>(3.3%)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Corrective Work Orders</th>
<th>2012</th>
<th>2013</th>
<th>Increase</th>
<th>% of Increase</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>1,707</td>
<td>1,360</td>
<td>(347)</td>
<td>(20.3%)</td>
<td></td>
</tr>
<tr>
<td>Collections, pump stations</td>
<td>260</td>
<td>304</td>
<td>44</td>
<td>16.9%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Odor Complaints</th>
<th>2012</th>
<th>2013</th>
<th>Increase</th>
<th>% of Increase</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>15</td>
<td>10</td>
<td>(5)</td>
<td>(33.3%)</td>
<td>&lt;10</td>
</tr>
<tr>
<td>Collections</td>
<td>4</td>
<td>7</td>
<td>3</td>
<td>(75%)</td>
<td></td>
</tr>
</tbody>
</table>
### Summary of Treatment Facilities

<table>
<thead>
<tr>
<th>Facility Name</th>
<th>Watershed</th>
<th>Plant Capacity MGD</th>
<th>Plant Capacity @100GPCD</th>
<th>Average Daily Dry [a] Weather Flow</th>
<th>Average Daily Flow</th>
<th>P.E. @ 0.21 LBS/C/D (e)</th>
<th>P.E. Capacity Used</th>
<th>Process Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Turkey Creek MSD #1</td>
<td>Turkey Creek</td>
<td>8.00</td>
<td>80,000</td>
<td>4.96</td>
<td>7.03</td>
<td>62,751</td>
<td>78%</td>
<td>TF</td>
</tr>
<tr>
<td>2. Mission Main MSD #1</td>
<td>Brush Creek</td>
<td>7.00</td>
<td>70,000</td>
<td>4.72</td>
<td>7.05</td>
<td>53,704</td>
<td>77%</td>
<td>TF</td>
</tr>
<tr>
<td>3. Tomahawk Creek MSD #1</td>
<td>Indian Creek</td>
<td>4.00</td>
<td>40,000</td>
<td>5.03 (b)</td>
<td>5.79</td>
<td>43,039</td>
<td>108%</td>
<td>TF</td>
</tr>
<tr>
<td>4. Indian Creek Middle Basin</td>
<td>Indian Creek</td>
<td>14.50</td>
<td>145,000</td>
<td>8.40</td>
<td>11.13</td>
<td>180,915</td>
<td>125%</td>
<td>BNR</td>
</tr>
<tr>
<td>5. Blue River MSD #1</td>
<td>Blue River</td>
<td>10.50</td>
<td>105,000</td>
<td>3.50</td>
<td>5.11</td>
<td>38,060</td>
<td>36%</td>
<td>BNR</td>
</tr>
<tr>
<td>6. Blue River SSD #4</td>
<td>Blue River</td>
<td>0.02</td>
<td>200</td>
<td>NA (c)</td>
<td>NA (c)</td>
<td>NA (c)</td>
<td>NA (c)</td>
<td>LAGOON</td>
</tr>
<tr>
<td>7. Little Bull Creek SSD #2</td>
<td>Bull Creek</td>
<td>1.10</td>
<td>63,000</td>
<td>0.37</td>
<td>0.58</td>
<td>35,791</td>
<td>57%</td>
<td>ACT</td>
</tr>
<tr>
<td>8. Mill Creek Regional</td>
<td>Mill Creek</td>
<td>18.75</td>
<td>187,500</td>
<td>7.29</td>
<td>9.97</td>
<td>72,288</td>
<td>39%</td>
<td>ACT&amp;AL</td>
</tr>
<tr>
<td>9. KCMO Tomahawk diversion</td>
<td></td>
<td></td>
<td></td>
<td>5.77</td>
<td>9.29</td>
<td>(f)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. KCMO all Sites</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td><strong>63.87</strong></td>
<td><strong>690,700</strong></td>
<td><strong>40.04</strong></td>
<td><strong>58.69</strong></td>
<td><strong>486,548</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Legend
- **TF** = Trickling Filter
- **ACT** = Activated Sludge
- **LAGOON** = Waste Stabilization Lagoon
- **AL** = Aerated Lagoon
- **BNR** = Biological Nutrient Removal
- **NA** = Not Applicable

### Notes
(a) Dry Weather Flows were estimated using the lowest monthly average flow for each facility.
(b) Flows into this facility are controlled between 4 and 7 MGD to allow for seasonal nitrification. Flows above these limits were diverted to Kansas City, Missouri (KCMO) for treatment.
(c) Influent BOD samples and flow measurement are not collected at the waste stabilization lagoon facility.
(d) Little Bull Creek SSD #2 capacity and P.E. are based on maximum 5 day average BOD.
(e) Pounds/Capita/Day
(f) Not included in flow total
## Summary of Treatment Costs

<table>
<thead>
<tr>
<th>Plant</th>
<th>Direct Cost (1)</th>
<th>Indirect Cost (2)</th>
<th>Total Cost (3)</th>
<th>Flow, MG Total Annual</th>
<th>Flow, MG Average Daily</th>
<th>BOD5, lbs</th>
<th>$/MG</th>
<th>$/lb BOD5</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRM</td>
<td>$2,251,273</td>
<td>$70,324</td>
<td>$2,321,597</td>
<td>1,865</td>
<td>5.11</td>
<td>2,917,270</td>
<td>$1,245</td>
<td>$0.80</td>
</tr>
<tr>
<td>ICMB</td>
<td>$5,115,865</td>
<td>$159,807</td>
<td>$5,275,672</td>
<td>4,062</td>
<td>11.13</td>
<td>13,867,157</td>
<td>$1,299</td>
<td>$0.38</td>
</tr>
<tr>
<td>MCR</td>
<td>$2,190,275</td>
<td>$68,419</td>
<td>$2,258,694</td>
<td>3,639</td>
<td>9.97</td>
<td>5,540,883</td>
<td>$621</td>
<td>$0.41</td>
</tr>
<tr>
<td>NC</td>
<td>$3,470,924</td>
<td>$108,423</td>
<td>$3,579,347</td>
<td>4,957</td>
<td>13.58</td>
<td>8,926,283</td>
<td>$722</td>
<td>$0.40</td>
</tr>
<tr>
<td>NCAC (4)</td>
<td>$1,074,811</td>
<td>$33,574</td>
<td>$1,108,385</td>
<td>212</td>
<td>0.58</td>
<td>1,179,180</td>
<td>$5,236</td>
<td>$0.94</td>
</tr>
<tr>
<td>THM</td>
<td>$1,035,047</td>
<td>$32,332</td>
<td>$1,067,379</td>
<td>2,113</td>
<td>5.79</td>
<td>3,298,903</td>
<td>$505</td>
<td>$0.32</td>
</tr>
<tr>
<td>KCMO (5)</td>
<td>$8,166,414</td>
<td>$255,099</td>
<td>$8,421,513</td>
<td>4,391</td>
<td>12.03</td>
<td>6,865,592</td>
<td>$1,918</td>
<td>$1.23</td>
</tr>
<tr>
<td>Totals</td>
<td>$23,304,609</td>
<td>$727,979</td>
<td>$24,032,587</td>
<td>21,239</td>
<td>58.2</td>
<td>42,595,266</td>
<td>$1,132</td>
<td>$0.56</td>
</tr>
</tbody>
</table>

With Collections $29,994,751 $936,962 $30,931,713 21,239 58.2 42,595,266 $1,456 $0.73
Without KCMO $21,828,337 $681,863 $22,510,200 16,848 46.2 35,729,675 $1,336 $0.63

### Legend

- **MG** = Million Gallons
- **BOD5** = 5 day biochemical oxygen demand

### Notes

1. Plant operation and maintenance cost.
2. Pro-rated O&M Administration cost.
3. Does not include New Development Engineering or Wastewater Central Administration costs.
5. Includes O&M portion of charge only. Capital charge not included.
6. KCMO payment, 4th quarter capital is now part of O&M cost.
2013 Capital Expenses

Total
$67,843,641

- Miscellaneous Expenses $54,775
- Contract Payment to KCMO $3,775,218
- Cost Allocation $500,059
- Water Quality Lab $409,965
- Admin Building | Water Quality Lab $700,579

- GO Bond Debt Service $23,314,395
- State Loan Debt Service $5,673,775

Project Expenses $33,844,840

- Expansion-Plants $21,212,281
- Expansion-Sewers $4,842,227
- Renewal/Replacement $3,484,277

- Permit/Regulatory $3,082,112
- Other $1,223,942

2013 Capital Project Spending YTD
$33,844,840
### History of Key Activity Indicators 2009-2013

#### Odor Complaints

<table>
<thead>
<tr>
<th>Year</th>
<th>Blue River</th>
<th>Douglas L. Smith Middle Basin</th>
<th>Mill Creek Regional</th>
<th>Nelson Complex</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>2010</td>
<td>9</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>2011</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>2012</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>2013</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>7</td>
</tr>
</tbody>
</table>

#### National Pollutant Discharge Elimination System – Discharge Violations

<table>
<thead>
<tr>
<th>Year</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12</td>
<td>3</td>
<td>11</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

99.6% Compliance in 2013

#### User Charge Delinquency Rate History

<table>
<thead>
<tr>
<th>Year</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.74%</td>
<td>2.49%</td>
<td>3.53%</td>
<td>3.75%</td>
<td>4.22%</td>
</tr>
</tbody>
</table>

The Annual Delinquency Rate measures calendar year invoices billed versus collections for that same period. The Annual Delinquency Rate allows for budget year comparisons and year-to-year trend analysis. However, JCW’s 2009 Annual Report reflected a cumulative delinquency rate based on multiple years over time, total billed versus total collections through the current period.
Tony Hall (left) and Trent Menssen, technical support analysts, are both responsible for addressing hardware issues for staff, as well as updating equipment and software, and serve as technology troubleshooters.

Michael Beukel (left) and Martin Meyer, line cleaning/inspection crew members

Deanna Kettner - treatment crew leader (left), Linsey Brashears treatment crew leader (standing) and Amanda Black – treatment crew member

Gary Long, treatment crew leader

Jimmie Riley, line cleaning/inspection crew member

Chris Eshnaur, line cleaning/inspection crew member

Jamie Silvers, superintendent of the Douglas L. Smith Middle Basin and Tomahawk Creek wastewater treatment plants, and Robert Morris, assistant superintendent of the Douglas L. Smith Middle Basin Wastewater Treatment Plant.