



## **Supplemental Environmental Project Completion Report**

**February 11, 2005 – June 1, 2012**

**Submitted to EPA on June 29, 2012**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A handwritten signature in black ink, appearing to read 'Debbie G. Ailey', written over a horizontal line.

Debbie G. Ailey

A handwritten date '6/28/12' in black ink, written over a horizontal line.

Date

## **Table of Contents**

- 1. The Supplemental Environmental Project (SEP) as Implemented**
- 2. Description of Implementation Problems and Solutions**
- 3. Itemization of All SEP Costs and Acceptable Evidence of Such Costs**
- 4. Certification that the SEP has been fully Implemented Pursuant to the Provisions of the Consent Decree including Appendix B**
- 5. Description of the Environmental and Public Health Benefits resulting from Implementation of the SEP (with a quantification of the benefits and pollutant reductions to the extent feasible)**
- 6. Brochures, Databases, and Software relating to the SEP**

### **Appendix A**

**Itemization of All SEP Costs and Acceptable Evidence of Such Costs**

### **Appendix B**

**Infiltration and Inflow Analysis**

### **Appendix C**

**Brochures, Databases, and Software relating to the SEP**

## 1. The Supplemental Environmental Project (SEP) as Implemented

On February 11, 2005 the Knoxville Utilities Board (KUB) entered into a Consent Decree, which required KUB to implement a SEP to reduce extraneous flows entering the Wastewater Collection and Transmission System (WCTS) through defective residential private laterals and illicit connections. The SEP was one of many programs required by the Consent Decree to reduce or eliminate storm and ground water from entering the WCTS and causing wet weather Sanitary Sewer Overflows. The SEP was to be completed by February 11, 2013.

As stated in the Consent Decree, the goals of the SEP were to:

- *Repair or replace defective residential Private Laterals and remove illicit connections from residential properties;*
- *Bring aged defective Private Laterals into compliance with current plumbing code;*
- *Reduce Inflow and Infiltration (I/I) to the WCTS;*
- *Reduce Sanitary Sewer Overflows (SSOs);*
- *Decrease wet-weather flow to the WCTS; and*
- *Provide financial assistance to eligible residential property owners to repair or replace Private Laterals and remove illicit connections.*

KUB dedicated two million dollars to this project as part of the Consent Decree settlement to provide assistance to property owners that would need to make repairs. In addition to this assistance, KUB also voluntarily established a no-interest loan for property owners that would not qualify financially for assistance.

To accomplish the goals of the SEP, KUB developed a Private Lateral Program (PLP) in 2005 to manage all activities and communications. Prior to PLP implementation, an initial analysis was performed to determine the approximate number of defective laterals in KUB's wastewater system. Smoke testing was initially chosen as the primary tool for determining defects and prohibited connections requiring enforcement action (closed circuit television (CCTV) was added later on as an inspection tool). Also, during the development of this program, homeowner income information from all areas of the KUB wastewater service area was obtained to help establish hardship eligibility guidelines for funding assistance provided under the SEP for private lateral rehabilitation. The SEP allowed KUB to provide financial assistance to customers who met either the very low, low, or moderate income levels. A careful examination of expected lateral failure rates, in addition to 2000 Census homeowner income information, was performed to determine how to set income limits for financial assistance and extend this support to as many customers as possible. The income limits initially selected were from the Housing and Urban Development (HUD) guidelines for very low income households, where very low income is defined as less than 50% of the median income based on family size. HUD guidelines are widely used in many homeowner assistance programs and include limits for homeowner incomes defined at very low, low, and moderate levels relative to median income for the service area.

KUB contracted with Knoxville-Knox County Community Action Committee (CAC), which is a local non-profit entity, as the Third Party Administrator to help administer the SEP. CAC processed applications for eligibility, estimated job costs, bid jobs to plumbers, and ensured plumbers completed the required work under this program. In addition to administering the SEP Grant program, CAC also assisted with KUB's interest-free Loan program. Approval for financial assistance was based on income, but not income alone. CAC made adjustments

for family size, medical expenses, and other qualifying factors. In the first two years of the PLP, the very low income limits, updated annually for earning growth by HUD, were used in determining a property owner's eligibility for funding under the SEP Grant program.

The identification of defective laterals began in areas of the collection system where improvement projects were underway. KUB's Phase I Corrective Action Plan/Engineering Report (CAP/ER) and subsequent annual CAP/ER progress reports, describe KUB's approach to identifying WCTS areas needing rehabilitation and how priorities for project work are established. Identification of defective private lateral and illicit connections contributing to extraneous flow generally followed these rehabilitation projects. Any projects involving mainline replacements always involved installation of a two-way cleanout on customers' properties used for lateral inspections and the replacement of the lower lateral from the cleanout to the main by KUB. Thus, customers were only responsible for repairs if the upper portion of the lateral was found to be defective.

Property owners received notification of defective laterals or prohibited connections upon review of CCTV inspections or smoke testing results from KUB's PLP. The first notice mailed to customers included a letter explaining the Program, information related to financial assistance, and/or the steps to follow to get a licensed plumber to complete the necessary repairs. This packet, or notice, also included CCTV pictures of defects inside the sewer lateral or pictures of smoke testing and a description of KUB's findings and requirements (whether a point repair or full replacement was needed). The initial letter also established the 120-day enforcement deadline for property owners to complete the lateral repairs. If work was not completed within this time frame, the water service was terminated at the property. KUB instituted several practices to ensure property owners and tenants were aware of the enforcement process and the consequences for not completing the required work (as outlined in KUB's approved Enforcement Response Guide). KUB's PLP enforcement schedule is as follows:

- Day 0: Notice of Noncompliance (NONC) packet sent by certified mail.
- Day 30: Notice of Violation (NOV) letter sent by certified mail.
- Day 60: KUB attempts to contact the owner by phone or door hanger if contact has not already been made.
- Day 90: Urgent Final Notice sent by certified mail.
- Day 110: A door hanger is delivered to the property saying water service will be shut off in 10 days unless the owner arranges to correct the problem.
- Day 119: KUB makes a final contact attempt before shutting off water.
- Day 120: KUB turns off water service and leaves a door hanger as notice.

Properties that have their water service terminated due to noncompliance with PLP requirements are flagged in KUB's Customer Information System (CIS) database. This alert stays on the property's account to ensure water service is not reinstated until the lateral repairs have been completed. Water service remains terminated until all repairs have been inspected and approved, even if property ownership changes. In addition, the City of Knoxville Codes Department is notified any time water service is terminated due to a property owner being in noncompliance with the PLP's requirements and a "condemnation" status is placed on the property until repairs are made.



Over time, KUB gained information about the best tools for evaluating collection system problems and identifying defective laterals. In addition to smoke testing, CCTV was evaluated for use in determining defects in 2006. Private laterals are subject to inspection as prescribed in the Continuing Sewer System Assessment Program (CSSAP), and smoke testing is routinely used to identify sources of extraneous flow into the WCTS from laterals and illicit connections, such as roof and area drains. However, CCTV inspections can more precisely identify the location of defects, eliminating the possibility of smoke from smoke testing traveling through cracks in the ground and falsely identifying the location of a defect.

CCTV has been very effective in resolving customer questions related to required corrective action and enforcement. In many cases, CCTV has confirmed the need for only a point repair. For instance, 26.5 percent of all defective laterals have required only repairs rather than extensive replacement. This is due in part to the accuracy of CCTV inspections; thus potentially eliminating some burden and expense of a full sewer lateral replacement on almost 900 customers. In 2007, CCTV of private laterals after mainline rehabilitation became KUB's preferred means of accurately determining defects to avoid unnecessary repairs and customer concerns related to unnecessary repair costs.

KUB continued to improve other aspects of the PLP over time. In late 2007, KUB began utilizing launch camera technology in situations where customers call in to KUB's Customer Information Center (CIC) to report wastewater problems on their property. The launch camera is a CCTV device that can be used to televise portions of the sewer main and has a smaller secondary camera, which can launch into the private sewer lateral. This instrument is useful when a cleanout is not available in the yard to access the lateral. This technology allowed KUB to determine if a problem existed with the sewer main or was a problem on property (POP). The televised data was used to give customers a better understanding of whether their problem was the result of a defective private sewer lateral, a blockage, or internal plumbing issues. POP cases involve sewage on the ground or in the home, which is a public health concern. This process helps customers resolve problems causing imminent health risks. If defects were discovered in the private sewer lateral, the homeowner received additional notification from the PLP and was required to make the necessary repairs.

In the first two years of the program implementation, KUB also determined from the PLP data that areas with the highest lateral failure rates also had a large number of tenant occupants. By the end of 2007, the average tenant occupancy rate of properties requiring lateral repair was at least 40%. These situations greatly reduced the expected number of property owners eligible to apply for financial assistance, since the grant was only offered to owner-occupied residential properties. Table 1 shows the tenant statistics compared to the number of laterals under enforcement for each basin. (KUB's wastewater service area is divided into areas called basins. Those basins are then divided into smaller areas identified as sub-basins, and then into even smaller areas named mini-basins.)

**Table 1. Tenant Statistics through May 31, 2012**

<b>Basin</b>	<b>Defective Laterals</b>	<b>Tenant Situations</b>	<b>Tenant Rate</b>
First Creek	1025	416	41%
Fourth Creek	13	2	15%
Knob Creek	42	13	31%
Loves Creek	131	24	18%
Second Creek	886	436	49%
Sinking Creek	2	0	0%
South Knox	203	65	32%
Third Creek	220	91	41%
Williams Creek	843	370	44%
<b>Totals</b>	<b>3365</b>	<b>1417</b>	<b>42%</b>

In 2007, an analysis of upcoming projects associated with CAP/ER work, based on historical failure rates, tenant rates, and grant approvals indicated that 50% of the median income (very low income) was too low for many homeowners to qualify. This analysis suggested that an adjustment to the income guideline limits for grant qualification was needed to allow more property owners to qualify for funding assistance as defective laterals were identified. On January 1, 2008, KUB moved the income guidelines for the Grant program qualification from 50% of median income (very low income) to 80% of median income (low income) to assist more customers as we continued system improvement projects.

In 2008 and 2009, KUB completed CAP/ER projects in a few mini-basins that were expected to have high grant qualification rates, but the tenant occupancy in these areas rose to 55%. One of these areas included the Williams Creek basin, where lateral failure rates were some of the highest recorded due to lateral age and pipe material. Another examination in 2009 of all PLP data including historical failure rates, grant approvals, and the projects to be undertaken in the upcoming years was conducted. Table 2 shows the areas with highest failure rates to be First Creek, Second Creek, and Williams Creek basins, where rehabilitation efforts were already underway. This analysis also took into account the percentage of tenancy in various sub-basins and those applications that failed to qualify for assistance. It was determined that another adjustment of the median income requirement would permit more homeowners to qualify while KUB was working in areas that had the highest failure rates. This adjustment would also allow areas with the greatest need to have access to SEP financial assistance and would benefit homeowners at a time when many customers might be struggling financially because of the economy.

**Table 2. Failure Rates by Basin through May 31, 2012**

<b>Basin</b>	<b>CCTV Inspections</b>	<b>Notifications due to CCTV Inspections</b>	<b>Notifications <u>not</u> due to CCTV Inspections</b>	<b>Total Notifications</b>	<b>Failure Rates Based on Inspections</b>
First Creek	2425	983	42	1025	42.27%
Fourth Creek	188	13	0	13	6.91%
Knob Creek	314	42	0	42	13.38%
Loves Creek	544	75	56	131	24.08%
NE Knox	6	0	0	0	0.00%
Second Creek	1920	873	13	886	46.15%
Sinking Creek	42	2	0	2	4.76%
South Knox	456	203	0	203	44.52%
Swanpond	1	0	0	0	0.00%
Third Creek	1093	220	0	220	20.13%
Williams Creek	1521	698	145	843	55.42%
<b>Totals</b>	<b>8510</b>	<b>3109</b>	<b>256</b>	<b>3365</b>	<b>39.54%</b>

Beginning January 1, 2010, KUB made its third and final increase to the income guidelines for the Grant program, increasing the qualification rate from 80% of median income (low income) to 95% of income (moderate income). The 95% level is defined as moderate income by HUD. (See Table 4 for a breakdown of changes in the Grant program income level guidelines.)

KUB also established a way to address older laterals that would be expected to have defects. When Phase I CAP/ER project work was ahead of schedule or ongoing projects involved primarily trunk line replacement and storage construction, fewer lateral inspections were being conducted in residential areas. During these periods, KUB decided to use historical PLP data and information obtained from our CSSAP to identify areas with potentially defective laterals. The CSSAP assigns R-values, which is the percent of rainfall from inflow and infiltration entering the WCTS as determined by flow monitoring, to areas within KUB's system.

KUB analyzed information obtained on mini-basins where rehabilitation work had not occurred but where adjacent areas had high private lateral failure rates. If the area was not scheduled for rehabilitation work in the near future but there was a high R-value ( $R > 10$ ) or the system age was greater than 40 years old and the majority of pipe material included materials known to contain defects, homeowners were given an opportunity to qualify for assistance. Table 3 shows the areas where homeowners were extended this opportunity along with the R-value for that area and the number of laterals repaired.

**Table 3. Grants based on Offers**

<b>Area</b>	<b>R-Value</b>	<b>Offers Mailed to KUB customers</b>	<b>Grants Approved</b>
First Creek #01A2	11.0	340	27
First Creek #17	15.5	377	15
Loves Creek #26*	1.2	1026	56
Second Creek #14C1	15.0	205	8
Second Creek #15D2	17.1	411	5
Williams Creek #25*	9.0	995	104
Williams Creek #31*	1.8	178	41
<b>Totals</b>		<b>3532</b>	<b>256</b>

\*The sewer system age was greater than 40 years, the majority of pipe mapped in the area included materials known to contain defects, and adjacent areas had high private lateral failure rates.

Property owners that were approved for assistance under the income guidelines signed an agreement to voluntarily enter the PLP. They received a full replacement of their sewer lateral without a CCTV inspection, unless the CAC plumber determined the lateral was in good condition. The work also had to be completed within the 120 day timeframe. In total, 256 KUB customers took advantage of this offer.

In summary, KUB implemented and completed its SEP by using different approaches and continuous examination of available data and inspection tools. Over the last seven years, KUB has required 3,365 private sewer laterals to be repaired or replaced under the PLP. As of May 31, 2012, KUB awarded the SEP Grant to 981 residential property owners and spent SEP Grant funds totaling \$2,063,197. These disbursements are discussed more in Section 3 of this SEP Completion Report. Sewer lateral inspections and identification of illicit connections continue to be a part of KUB's CSSAP activities, and KUB's PLP will continue to require repairs on those laterals found to allow inflow or infiltration of rain or ground water into the collection system.

## **2. Description of Implementation Problems and Solutions**

KUB did not experience any significant problems in implementing its SEP because the program continued to evolve and improve over time to address more customers and areas. The primary concern anticipated and realized over the course of the program related to the PLP's impact on our customers.

Early on, KUB realized this program was going to be a significant hardship on our customers both financially and physically to their property. Since its inception, customers have expressed dissatisfaction, especially those faced with possible termination of water service for failure to comply with lateral repairs. To help with this problem KUB made communication a priority from the beginning. Good communication, along with the availability of additional financial aid, made requirements on customers a little easier. KUB structured letters, postcards, brochures, bill inserts, and the website to effectively communicate why correcting defective laterals and prohibited connections on their property was important to the



community, water quality, and the environment. Communications always included information about available financial assistance and were frequently reviewed to make sure the information was accurate and helpful. Over the course of the SEP, KUB has mailed over 20,000 notifications or letters directly to customers regarding PLP requirements.

KUB also made communication with community representatives a priority. Partners Acting for a Cleaner Environment (PACE 10) is KUB's \$530 million, ten-year wastewater system improvement program dedicated to clean up area waterways and meet regulatory requirements. Since it was established in 2004, KUB has conducted public meetings with a community council, called the Partners Council, to discuss PACE 10 system improvement work, including PLP activities and its impact on the community. This council is made up of various individuals in our community that represent citizens, businesses, and community organizations. Partners Council continues to receive monthly updates, in addition to the regular meetings, concerning PACE 10 work.

In addition to Partners Council meetings, KUB has met with other community organizations (for example, senior citizen centers, churches, neighborhood associations, Legal Aid, realtor associations, the Better Business Bureau, etc.) to discuss the PLP and its impact on KUB's customers and the environment. Presentations and interviews were also conducted for local TV stations and newspapers. Moreover, each time KUB entered an area to start a construction project, customers in the area were notified about PACE 10 work and given contact information to call for any questions they may have concerning the impending work and lateral inspections by KUB. KUB continues to inform customers on all PACE 10 work prior to construction.

Many customers expressed concerns over digging on their property, especially when full sewer lateral replacements were required. KUB gave recommendations for alternate plumbing practices to reduce the impact on yards, such as using the "pipe bursting" method to replace sewer lines instead of extensive digging. This method reduced property disturbance and was especially beneficial to customers who didn't want to dig up landscaping, driveways, or parking lots.

Because the PLP started at a time when the economy was struggling, KUB decided to also offer an interest-free Loan program to help those customers who could not qualify for a grant but still needed some type of help to manage the cost of the required repairs. This Loan program provided customers an opportunity to finance repairs over 48 months without interest. It used the same eligibility requirements as the SEP Grant program, only with higher income limits for loan approval. KUB's Loan program awarded 36 loans to residential property owners between August 2005 and its completion in January 2012.

KUB expected customers to delay in making repairs, so notifications were also clear about enforcement timelines and consequences. This was viewed by some customers as heavy-handed, but its intent was to ensure repairs were completed within 120 days as required by KUB Rules and Regulations. Notifications always included information on how customers could appeal required action on their property.

Under KUB's Wastewater Rules and Regulations, customers under PLP enforcement have the option to appeal the decision that their private sewer lateral was defective and in violation of those Rules and Regulations. Any customer filing an appeal was scheduled a hearing to have their appeal reviewed by an Appeals Board. To file an appeal, customers were to submit their appeal in writing. Appeals could be based on disputing KUB's finding

that the lateral was defective or disputing ownership of the property where the lateral is located, etc. Appeals based on an inability to pay the cost of the repair or replacement of private laterals and appeals that challenged KUB's legal authority to require repair or replacement of private laterals were not eligible for review by the Appeals Board.

One customer appealed KUB's determination of their private laterals' conditions. This occurred in 2009 when KUB's Appeals Board held two hearings for appeals on six properties filed by one property owner. The appeals were denied based on the owner's inability to provide evidence that the laterals were not defective under the guidelines of the Program. In these instances, CCTV was used to effectively prove the existence of defects in the private laterals that would allow either excess ground or rainwater to enter the sewer system or sewage to exit the sewer pipes. KUB held enforcement while the appeals were pending, and enforcement resumed after the appeals were denied. All six laterals were repaired.

No other problems or concerns were identified.

### **3. Itemization of All SEP Costs and Acceptable Evidence of Such Costs**

As of May 31, 2012, KUB required 3,365 laterals to be repaired or replaced in the PLP, which consisted of 890 point repairs and 2,475 full replacements. The required repairs were completed on 3,230 private sewer laterals through May 2012. There were 241 water services terminated due to the property owners not completing the required repairs by the 120 day deadline; however, 139 of those services were reinstated throughout the course of the Program after the repairs were eventually completed, leaving 102 services that continue to be off due to noncompliance with the PLP. As previously mentioned, properties with terminated water service are flagged in KUB's CIC database, and this alert stays on the property's account until the lateral repairs have been inspected and approved to ensure water service is not reinstated. At the end of May 2012, there were 33 active properties still under PLP enforcement.

As described in Section 1 under SEP Implementation, the income limits for grant qualification continued to steadily increase over time to assist more customers while ensuring support for customers who needed assistance the most during the remainder of this period. Table 4 shows the adjustment to the qualification guidelines and corresponding number of grants and loans for each year of the SEP.

**Table 4. Grant and Loan Approvals and Income Guidelines**

Year	SEP Grants Approved	Grant Income Guidelines	Loans Approved	Loan Income Guidelines
2005	10	0-50% median income	0	51-60% median income
2006	87	0-50% median income	12	51-60% median income
2007	68	0-50% median income	11	51-60% median income
2008	232	0-80% median income	4	81-95% median income
2009	163	0-80% median income	8	81-95% median income
2010	214	0-95% median income	1	96-100% median income
2011	192	0-95% median income	0	96-100% median income
2012	15	0-95% median income	0	96-100% median income
<b>Totals</b>	<b>981</b>		<b>36</b>	

The SEP Grant was awarded to 981 customers throughout KUB's service area through March 2012. KUB mailed out over 1,600 financial aid applications to customers. Out of the applications that were returned, there was an 82% approval rate for the SEP Grant. Applicants who were over income for the SEP Grant were automatically considered for the KUB Loan; and if they fell within the Loan program's income guidelines, they were offered the Loan option. KUB was able to help more customers through a grant (which did not have to be paid back) versus the loan. Most customers who did not qualify for grant assistance chose not to take advantage of KUB's Loan program. The breakdown of the Financial Assistance Activity by Basin is shown in Table 5.

**Table 5. Financial Assistance Activity through May 31, 2012**

Basin	Financial Assistance Applications Sent to Customers	Financial Assistance Applications Returned to KUB	SEP Grants Approved	SEP Grant Approval Rate	KUB Loans Approved
First Creek	425	313	256	82%	3
Knob Creek	16	12	9	75%	1
Loves Creek	224	111	81	73%	1
Second Creek	284	237	198	84%	14
South Knox	66	51	44	86%	2
Third Creek	60	45	31	69%	3
Fourth Creek	3	3	2	67%	0
Williams Creek	562	431	360	84%	12
<b>Totals</b>	<b>1640</b>	<b>1203</b>	<b>981</b>	<b>82%</b>	<b>36</b>

All SEP Grants were completed and invoiced to KUB from CAC by May 2012. KUB processed the invoices and made the final payment from the SEP Escrow account to officially complete the SEP requirements. The SEP Escrow account was closed on June 1, 2012. In total, \$2,063,197.75 in SEP funds was disbursed, which includes all interest earned on the SEP Escrow account. Table 6 shows a total for deposits, disbursements, and invoice amounts accrued through June 1, 2012. As per the Consent Decree requirements, these

funds covered the cost of plumbers performing repair or replacement of private laterals and removal of illicit connections owned by private residential customers. The costs of KUB and CAC staff and the program administration costs to support the SEP were not paid from SEP funds.

The PLP continues to operate after the completion of the SEP, but KUB funding options available to customers has changed. Since there was minimal use or interest in the no-interest loan from customers, it was discontinued in January 2012. However, KUB has set aside funding to continue to offer a Residential Assistance Grant to low-income, residential property owners in the PLP to help with the cost of private lateral repairs. In fact, the last SEP Grant invoice from CAC totaled more than the available funds in the SEP Escrow account as indicated in Table 6. KUB paid almost \$7,500 from the new Residential Assistance Grant to cover the remaining balance owed to CAC for SEP Grants. At the present time, KUB continues to offer the new Residential Assistance Grant using the median income qualification limits set by HUD.

**Table 6. SEP Escrow Account Statistics through June 1, 2012**

Total deposits and interest earned in SEP Escrow Acct.	\$2,063,197.75
Amount Disbursed from SEP Escrow Acct.	\$2,063,197.75
Amount Invoiced by CAC for SEP Grants	\$2,070,684.21
Amount Disbursed from new Residential Assistance Grant	\$7,486.46

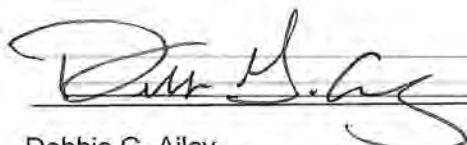
Appendix A provides more information, as required, regarding itemization of all SEP costs and evidence of those costs.

**4. Certification that the SEP has been fully Implemented Pursuant to the Provisions of the Consent Decree including Appendix B**

I certify that this SEP has been fully implemented pursuant to the provisions of the Consent Decree including Appendix B.

I certify that funds expended in the performance of this SEP have not been and will not be claimed as a deduction on any taxes including state and federal tax returns.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Debbie G. Ailey  
Manager, Regulatory Compliance

6/28/12

Date



**5. Description of the Environmental and Public Health Benefits resulting from Implementation of the SEP (with a quantification of the benefits and pollutant reduction to the extent feasible)**

Stormwater and ground water can enter the sanitary sewer through defects in private laterals and illicit connections. This excess water from inflow and infiltration (I/I) can overload the collection system and cause SSOs. Infiltration is a steady, continuous flow that varies somewhat with rainfall and groundwater levels. Defects allowing infiltration in private sewer laterals include holes, cracks, and breaks and are identified by KUB through CCTV. Inflow is a highly variable flow which is dependent on rainfall. Roof downspouts, area drains, and other illicit connections to the private sewer lateral allow inflow to occur and are identified by KUB through smoke testing.

KUB has continued to see a reduction of at least 59% in wet weather overflows since implementation of its PACE 10 program because of collection system rehabilitation work and the construction of six storage tanks that are now in use. This significant reduction in SSOs is clearly an environmental and public health benefit to our community and customers. However it has been difficult to measure exactly how much of this reduction can be attributed to eliminating infiltration from private sewer laterals.

Flow monitoring is part of our CSSAP activities and has been used to manage wastewater flows in the WCTS, set priorities for rehabilitation projects, determine design flows for the hydraulic models, and establish hydraulic models. It is also commonly used to quantify the amount of I/I that is reduced by sewer rehabilitation work. However, flow monitoring to evaluate reduction of infiltration from private laterals is impractical. It requires flow monitoring three times – prior to the start of any rehabilitation work, again after all system repairs except those involving laterals are completed, and finally after all lateral repairs are complete. The time frame of this construction period can range from several months to over a year depending on the size of the project area.

A flow study conducted by KUB in 2002 revealed the potential for I/I to enter the collection system was reduced considerably by replacing the lower portion of the sewer lateral during rehabilitation; therefore, KUB always includes replacement of the lower lateral from a cleanout set at the property line to KUB's sewer main as part of its main line rehabilitation practice. This approach means that any flow monitoring conducted would only measure the benefits from upper lateral repairs and would require a significant number of laterals be part of the monitoring effort in order to have a measurable flow difference. Throughout the PLP enforcements, it was observed that many defective laterals had multiple hairline cracks, and infiltration would be slow in these situations requiring longer flow monitoring periods.

It is also very important to recognize that the results of this type of flow study are dependent on overall age and condition of laterals in a given area and weather conditions during the monitoring period. For example, you cannot control similar rain events occurring at the same locations throughout different seasons. The rainfall monitored pre-construction in an area during the spring will be higher than the amount of rainfall monitored post-construction during the fall. In summary, any reduction measured in a given area at a given time is not necessarily representative of the reduction obtained in all parts of the collection system.

KUB was interested in evaluating quantitative benefits of repairing defective laterals versus removing illicit connections. When looking at the issue of infiltration, KUB analyzed televised data in November 2011 on 8,359 CCTV inspections of sewer laterals, which represents

approximately 12% of lateral connections in KUB's system. At that time, approximately 38% of those inspected were considered defective according to Pipeline Assessment & Certification Program (PACP) standards. Thirty-six percent of the laterals had no visible signs of significant infiltration and less than two percent showed active infiltration at the time of examination. With 117 of the laterals inspected showing active infiltration and approximately 3,000 laterals showing no visible signs of infiltration, we estimate the flow into the WCTS was reduced by approximately 68 gallons per minute (gpm). If the failure rate for defective laterals remains constant and all defective sewer laterals in KUB's system are repaired or replaced, KUB projects the flow throughout the entire system for both laterals with and without signs of infiltration to be approximately 457 gpm, which would account for less than 2% of KUB's wastewater treatment plant (WWTP) flows (based on an average annual flow of 40 million gallons per day [MGD]).

In addition, to investigate for inflow, KUB reviewed smoke test data in November 2011 of approximately 3,000,000 linear feet of sewer pipe, which is approximately 43% of KUB's collection system. Only 0.5% of laterals smoke tested were identified to have roof or area drains connected to KUB's sewer system. With 74 roof drains and 62 area drains identified, we estimate the flow into the WCTS was reduced by approximately 2,672 gpm during a 2-year rain event. Making some of the same assumptions as with infiltration, if the rate of illicit connections identified remained constant and all illicit connections to sewer laterals in KUB's system were removed, KUB projects the flow throughout the entire system to be approximately 6,218 gpm during a 2-year rain event, which would account for approximately 5% of KUB's WWTP flows (based on a maximum daily flow of 188 MGD).

See Appendix B for more information on the calculations and analysis of CCTV and smoke testing data.

The conclusions drawn from this data are that the flow from infiltration in upper sewer laterals is minor when compared to the total volume of flow coming into the WWTP. The inflow data is more significant than infiltration, but still shows a small impact on overall system flows. Also, identifying infiltration comes with a high cost to detect and a significant impact on KUB customers in cost and disruption to property, where there is a relatively low cost to detect inflow and a lower impact on KUB customers in both cost and property disruption.

Through our analysis of the SEP data, we believe the most beneficial aspects of the PLP for KUB and our customers are to continue administering the POP process, requiring the disconnection of illicit connections, and replacing all lower sewer laterals during sewer construction projects related to CAP/ER projects. In the future, the use of CCTV inspections will only be used in POP situations or in situations where high I/I problems continue to exist after the completion of CAP/ER projects as determined by flow monitoring.

The POP process helps customers identify the sources of problems causing the most imminent health risks. Quick response to POP situations also helps the environment by preventing wastewater from reaching ground water or being carried by storm water to area waterways, which adds to stream pollution. In addition, the removal of illicit connections and the tightening sewer mains and lower laterals through CAP/ER projects reduce excess water from entering the WCTS and thus reducing SSO occurrences.

**6. Brochures, Databases, and Software relating to the SEP**

See Appendix C.

**Appendix A**  
**Itemization of All SEP Costs and  
Acceptable Evidence of Such Costs**

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To protect our customers' privacy, copies of actual plumbers' invoices, which include customer names and addresses, were omitted from this copy of the report.

Invoice	Property Address	Contractor Name	Minimum Invoice Amount	Disbursement Date	Invoice Date	Invoice Balance
		Lyon Plumbing	\$1,250.00	11/29/2004	December-04	
		Lyon Plumbing	\$2,400.00	1/19/2005	January-05	\$1,250.00
		Lyon Plumbing	\$1,800.00	1/18/2005	January-05	\$4,700.00
		Wires	\$1,640.00	2/9/2005	February-05	\$3,225.00
		Lyon Plumbing	\$1,675.00	2/9/2005	February-05	
		Lyon Plumbing	\$2,953.00	2/24/2005	March-05	
		Lyon Plumbing	\$1,850.00	3/7/2005	March-05	
		Lyon Plumbing	\$1,825.00	3/22/2005	March-05	
		Lyon Plumbing	\$1,650.00	3/17/2005	March-05	
		Lyon Plumbing	\$1,785.00	3/17/2005	March-05	\$9,403.00
		Lyon Plumbing	\$2,000.00	4/18/2005	April-05	
		Lyon Plumbing	\$1,600.00	4/21/2005	April-05	
		Lyon Plumbing	\$2,045.00	4/21/2005	April-05	
		Lyon Plumbing	\$4,700.00	5/5/2005	April-05	
		Lyon Plumbing	\$1,000.00	5/8/2005	April-05	\$11,885.00
		Lyon Plumbing	\$1,385.00	5/24/2005	May-05	\$1,385.00
		Lyon Plumbing	\$2,243.00	6/12/2005	June-05	
		Lyon Plumbing	\$2,041.00	6/12/2005	June-05	
		Wires	\$1,142.00	6/12/2005	June-05	
		Lyon Plumbing	\$1,525.00	6/20/2005	June-05	
		Lyon Plumbing	\$1,575.00	6/20/2005	June-05	
		Wires	\$2,180.00	6/20/2005	June-05	
		Lyon Plumbing	\$1,450.00	6/20/2005	June-05	
		Wires	\$1,010.00	6/20/2005	June-05	
		Lyon Plumbing	\$1,040.00	6/20/2005	June-05	
		Lyon Plumbing	\$1,550.00	6/20/2005	June-05	\$15,256.00
		Lyon Plumbing	\$1,485.00	7/25/2005	July-05	
		Lyon Plumbing	\$1,075.00	7/25/2005	July-05	\$2,560.00
		Wires	\$1,830.00	7/5/2005	August-05	
		Lyon Plumbing	\$1,040.00	7/5/2005	August-05	
		Lyon Plumbing	\$1,220.00	7/31/2005	August-05	
		Lyon Plumbing	\$945.00	8/2/2005	August-05	
		Lyon Plumbing	\$1,050.00	8/2/2005	August-05	
		Lyon Plumbing	\$943.00	8/2/2005	August-05	
		Lyon Plumbing	\$1,045.00	8/2/2005	August-05	
		Lyon Plumbing	\$1,185.00	8/2/2005	August-05	
		Wires	\$1,437.52	8/9/2005	August-05	
		Lyon Plumbing	\$1,785.00	8/9/2005	August-05	
		Wires	\$1,262.50	8/9/2005	August-05	
		Lyon Plumbing	\$1,623.00	8/10/2005	August-05	
		Lyon Plumbing	\$1,085.00	8/10/2005	August-05	\$17,153.00
		Lyon Plumbing	\$1,450.00	8/15/2005	September-05	
		Lyon Plumbing	\$1,025.00	8/14/2005	September-05	
		Lyon Plumbing	\$950.00	8/14/2005	September-05	
		Lyon Plumbing	\$1,475.00	8/14/2005	September-05	
		Lyon Plumbing	\$1,185.00	8/14/2005	September-05	
		Lyon Plumbing	\$1,800.00	8/14/2005	September-05	
		Wires	\$2,415.00	8/21/2005	September-05	
		Wires	\$875.00	8/21/2005	September-05	
		Wires	\$2,365.00	8/21/2005	September-05	
		Lyon Plumbing	\$125.00	8/21/2005	September-05	
		Lyon Plumbing	\$1,325.00	8/21/2005	September-05	\$19,200.00
		Wires	\$1,433.00	10/19/2005	October-05	
		Lyon Plumbing	\$1,350.00	10/19/2005	October-05	
		Lyon Plumbing	\$1,250.00	10/19/2005	October-05	
		Lyon Plumbing	\$3,850.00	10/19/2005	October-05	
		Wires	\$2,375.00	10/11/2005	October-05	
		Lyon Plumbing	\$2,000.00	10/13/2005	October-05	
		Lyon Plumbing	\$4,025.00	10/13/2005	October-05	
		Lyon Plumbing	\$1,094.99	10/18/2005	October-05	
		Appliance	\$2,400.00	10/18/2005	October-05	
		East TN Mechanical	\$909.10	10/25/2005	October-05	
		East TN Mechanical	\$1,673.84	10/25/2005	October-05	
		Lyon Plumbing	\$1,044.99	10/26/2005	October-05	
		Lyon Plumbing	\$1,075.00	10/26/2005	October-05	\$25,020.94
		Lyon Plumbing	\$935.99	11/3/2005	November-05	
		Lyon Plumbing	\$2,109.99	11/17/2005	November-05	
		Appliance	\$2,493.00	11/13/2005	November-05	
		Wires	\$1,012.92	11/15/2005	November-05	
		Wires	\$1,392.68	11/13/2005	November-05	
		Lyon Plumbing	\$1,275.00	11/13/2005	November-05	
		Lyon Plumbing	\$1,375.00	11/27/2005	November-05	
		Lyon Plumbing	\$1,419.99	12/1/2005	November-05	\$12,085.53
		Lyon Plumbing	\$2,389.99	12/15/2005	December-05	\$2,389.99
		Lyon Plumbing	\$1,899.99	1/11/2007	January-07	
		Lyon Plumbing	\$1,525.00	1/11/2007	January-07	
		Lyon Plumbing	\$1,198.99	1/11/2007	January-07	
		Lyon Plumbing	\$1,888.99	1/11/2007	January-07	
		Lyon Plumbing	\$798.99	1/11/2007	January-07	
		Lyon Plumbing	\$1,959.99	1/11/2007	January-07	
		Lyon Plumbing	\$2,522.00	1/25/2007	January-07	
		Lyon Plumbing	\$1,718.99	1/25/2007	January-07	\$18,266.94
		Lyon Plumbing	\$2,049.99	2/1/2007	February-07	
		Lyon Plumbing	\$1,000.00	2/1/2007	February-07	
		Lyon Plumbing	\$1,950.00	2/5/2007	February-07	
		Lyon Plumbing	\$975.00	2/5/2007	February-07	
		East TN Mechanical	\$1,422.85	2/5/2007	February-07	
		Wires	\$1,423.84	2/5/2007	February-07	\$9,327.38
		Lyon Plumbing	\$1,678.99	3/8/2007	March-07	
		Wires	\$1,067.49	3/8/2007	March-07	
		ARS	\$1,175.74	3/8/2007	March-07	
		Wires	\$1,796.92	3/12/2007	March-07	
		Wires	\$878.00	3/12/2007	March-07	
		Wires	\$590.00	3/14/2007	March-07	
		Lyon Plumbing	\$559.99	3/14/2007	March-07	
		Wires	\$2,050.00	3/14/2007	March-07	
		Lyon Plumbing	\$1,525.00	3/14/2007	March-07	
		Lyon Plumbing	\$2,059.99	3/14/2007	March-07	
		Lyon Plumbing	\$805.00	3/14/2007	March-07	

Owner	Property Address	Expenditure Name	Minimum Monthly Amount	Disbursement Date	Invoice Date	Invoice Balance
		Lyon Plumbing	\$1,000.00	3/14/2002	March-02	
		Lyon Plumbing	\$2,389.99	3/14/2002	March-02	
		Lyon Plumbing	\$2,300.00	3/14/2002	March-02	
		Lyon Plumbing	\$275.00	3/14/2002	March-02	
		East TN Mechanical	\$1,646.32	3/26/2002	March-02	
		Lyon Plumbing	\$2,100.00	3/27/2002	March-02	
		Lyon Plumbing	\$2,850.00	3/27/2002	March-02	
		Lyon Plumbing	\$1,075.00	3/27/2002	March-02	\$29,645.42
		Lyon Plumbing	\$1,875.00	4/3/2002	April-02	
		Lyon Plumbing	\$2,175.44	4/3/2002	April-02	
		Lyon Plumbing	\$2,800.00	4/13/2002	April-02	
		Lyon Plumbing	\$1,500.00	4/13/2002	April-02	
		Lyon Plumbing	\$1,765.00	4/13/2002	April-02	
		Lyon Plumbing	\$350.00	4/13/2002	April-02	
		Lyon Plumbing	\$1,195.00	4/13/2002	April-02	
		Lyon Plumbing	\$1,950.00	4/13/2002	April-02	
		Lyon Plumbing	\$1,925.00	4/13/2002	April-02	\$12,363.87
		Lyon Plumbing	\$1,400.00	4/26/2002	May-02	
		Lyon Plumbing	\$1,595.00	5/2/2002	May-02	
		Lyon Plumbing	\$1,485.00	5/2/2002	May-02	\$4,470.00
		Lyon Plumbing	\$2,240.00	5/12/2002	June-02	
		Lyon Plumbing	\$2,250.00	5/12/2002	June-02	\$4,510.00
		Lyon Plumbing	\$1,425.00	7/1/2002	July-02	\$1,425.00
		Lyon Plumbing	\$1,200.00	7/14/2002	August-02	
		Lyon Plumbing	\$2,050.00	8/21/2002	August-02	
		Lyon Plumbing	\$600.00	8/31/2002	August-02	
		Lyon Plumbing	\$1,000.00	8/31/2002	August-02	
		Lyon Plumbing	\$3,450.00	8/31/2002	August-02	
		Lyon Plumbing	\$1,450.00	8/31/2002	August-02	
		Lyon Plumbing	\$1,120.00	8/31/2002	August-02	\$11,130.00
		Lyon Plumbing	\$1,500.00	8/1/2002	September-02	\$1,500.00
		Lyon Plumbing	\$1,375.00	10/5/2002	October-02	
		Lyon Plumbing	\$1,000.00	10/5/2002	October-02	
		Lyon Plumbing	\$1,525.00	10/5/2002	October-02	
		Lyon Plumbing	\$2,100.00	10/5/2002	October-02	
		Lyon Plumbing	\$400.00	10/16/2002	October-02	
		Lyon Plumbing	\$1,700.00	10/16/2002	October-02	
		Lyon Plumbing	\$1,425.00	10/16/2002	October-02	
		Lyon Plumbing	\$2,100.00	10/16/2002	October-02	
		Lyon Plumbing	\$1,390.00	10/26/2002	October-02	
		Lyon Plumbing	\$1,590.00	10/26/2002	October-02	\$14,765.00
		Lyon Plumbing	\$1,650.00	11/8/2002	November-02	
		Lyon Plumbing	\$1,570.00	11/8/2002	November-02	
		Lyon Plumbing	\$1,985.00	11/8/2002	November-02	
		Lyon Plumbing	\$2,475.00	11/8/2002	November-02	\$7,880.00
		Lyon Plumbing	\$2,895.00	12/12/2002	December-02	
		Lyon Plumbing	\$1,620.00	12/12/2002	December-02	
		Lyon Plumbing	\$1,950.00	12/12/2002	December-02	
		Lyon Plumbing	\$2,100.00	12/12/2002	December-02	\$8,555.00
		Lyon Plumbing	\$1,850.00	1/25/2003	January-03	
		Lyon Plumbing	\$1,240.00	1/25/2003	January-03	
		Lyon Plumbing	\$1,875.00	1/25/2003	January-03	
		Lyon Plumbing	\$2,150.00	1/25/2003	January-03	
		Lyon Plumbing	\$1,815.00	1/25/2003	January-03	
		Lyon Plumbing	\$2,350.00	1/25/2003	January-03	
		Lyon Plumbing	\$1,995.00	1/25/2003	January-03	
		Lyon Plumbing	\$1,445.00	1/25/2003	January-03	
		Lyon Plumbing	\$1,450.00	1/25/2003	January-03	
		Lyon Plumbing	\$2,300.00	1/25/2003	January-03	
		Lyon Plumbing	\$1,300.00	1/25/2003	January-03	
		Lyon Plumbing	\$1,620.00	1/25/2003	January-03	
		Lyon Plumbing	\$1,375.00	1/25/2003	January-03	
		Lyon Plumbing	\$1,800.00	1/25/2003	January-03	
		Lyon Plumbing	\$1,240.00	1/25/2003	January-03	
		Lyon Plumbing	\$1,360.00	1/25/2003	January-03	
		Lyon Plumbing	\$1,200.00	1/25/2003	January-03	
		Lyon Plumbing	\$1,950.00	1/25/2003	January-03	\$10,704.00
		Lyon Plumbing	\$2,560.00	2/18/2003	February-03	
		Lyon Plumbing	\$1,875.00	2/18/2003	February-03	
		Lyon Plumbing	\$1,620.00	2/18/2003	February-03	
		Lyon Plumbing	\$1,651.00	2/18/2003	February-03	\$7,824.00
		Lyon Plumbing	\$1,485.00	3/7/2003	March-03	
		Lyon Plumbing	\$1,830.00	3/7/2003	March-03	
		Lyon Plumbing	\$1,570.00	3/7/2003	March-03	
		Lyon Plumbing	\$1,950.00	3/7/2003	March-03	
		Lyon Plumbing	\$1,635.00	3/7/2003	March-03	
		Lyon Plumbing	\$200.00	3/7/2003	March-03	
		Lyon Plumbing	\$2,480.00	3/7/2003	March-03	
		Lyon Plumbing	\$1,351.00	3/26/2003	March-03	
		Lyon Plumbing	\$1,875.00	3/26/2003	March-03	
		Lyon Plumbing	\$616.00	3/26/2003	March-03	
		Lyon Plumbing	\$1,685.00	3/26/2003	March-03	
		Lyon Plumbing	\$1,580.00	3/26/2003	March-03	
		Lyon Plumbing	\$2,500.00	3/26/2003	March-03	
		Lyon Plumbing	\$2,760.00	3/26/2003	March-03	
		Lyon Plumbing	\$2,225.25	3/26/2003	March-03	\$25,482.25
		East TN Roofer & Plumbing	\$935.00	4/4/2003	April-03	
		East TN Roofer & Plumbing	\$1,202.00	4/4/2003	April-03	
		Lyon Plumbing	\$2,112.00	4/10/2003	April-03	
		Lyon Plumbing	\$3,451.00	4/10/2003	April-03	
		Lyon Plumbing	\$1,697.00	4/10/2003	April-03	
		Lyon Plumbing	\$1,717.00	4/10/2003	April-03	
		Lyon Plumbing	\$2,186.00	4/10/2003	April-03	
		Lyon Plumbing	\$1,120.00	4/14/2003	April-03	
		Lyon Plumbing	\$2,519.00	4/14/2003	April-03	
		Lyon Plumbing	\$2,349.00	4/14/2003	April-03	
		Lyon Plumbing	\$1,616.00	4/14/2003	April-03	\$20,881.00
		Southeastern Plumbing	\$1,498.00	5/1/2003	May-03	
		East TN Roofer & Plumbing	\$1,446.00	5/1/2003	May-03	

Owner	Property Address	Contractor Name	Refund/Income Amount	Disbursement Date	Invoice Date	Month's Balance
		Southwestern Plumbing	\$1,000.00	5/1/2000	May-00	
		Southwestern Plumbing	\$2,395.00	5/1/2000	May-00	
		Southwestern Plumbing	\$1,580.00	5/1/2000	May-00	
		Lyon Plumbing	\$1,260.00	5/8/2000	May-00	
		Lyon Plumbing	\$1,788.00	5/8/2000	May-00	
		Lyon Plumbing	\$1,700.00	5/8/2000	May-00	
		East TN Rooter & Plumbing	\$2,046.00	5/8/2000	May-00	
		Lyon Plumbing	\$1,617.00	5/8/2000	May-00	
		Lyon Plumbing	\$1,766.00	5/8/2000	May-00	
		Lyon Plumbing	\$2,260.00	5/8/2000	May-00	
		Southwestern Plumbing	\$1,590.00	5/14/2000	May-00	
		East TN Rooter & Plumbing	\$2,368.00	5/14/2000	May-00	
		Lyon Plumbing	\$2,496.00	5/14/2000	May-00	
		Southwestern Plumbing	\$1,648.00	5/14/2000	May-00	
		Lyon Plumbing	\$4,400.00	5/14/2000	May-00	
		East TN Rooter & Plumbing	\$1,785.00	5/20/2000	May-00	
		East TN Rooter & Plumbing	\$1,820.00	5/20/2000	May-00	
		Kelly Plumbing	\$1,528.00	5/21/2000	May-00	
		Lyon Plumbing	\$1,620.00	5/22/2000	May-00	
		Lyon Plumbing	\$1,419.00	5/22/2000	May-00	
		Lyon Plumbing	\$1,634.00	5/22/2000	May-00	
		Lyon Plumbing	\$1,425.00	5/30/2000	May-00	
		Southwestern Plumbing	\$2,147.00	5/30/2000	May-00	
		Lyon Plumbing	\$2,382.00	5/30/2000	May-00	549,281.00
		Lyon Plumbing	\$1,573.00	6/3/2000	June-00	
		East TN Rooter & Plumbing	\$3,679.00	6/3/2000	June-00	
		Kelly Plumbing	\$1,840.00	6/4/2000	June-00	
		Kelly Plumbing	\$2,756.00	6/6/2000	June-00	
		Southwestern Plumbing	\$2,970.00	6/5/2000	June-00	
		Kelly Plumbing	\$1,522.00	6/5/2000	June-00	
		East TN Rooter & Plumbing	\$1,645.00	6/10/2000	June-00	
		East TN Rooter & Plumbing	\$800.00	6/11/2000	June-00	
		Lyon Plumbing	\$1,908.00	6/11/2000	June-00	
		Southwestern Plumbing	\$1,798.00	6/11/2000	June-00	
		Southwestern Plumbing	\$1,235.00	6/20/2000	June-00	
		Southwestern Plumbing	\$645.00	6/20/2000	June-00	
		East TN Rooter & Plumbing	\$1,584.00	6/20/2000	June-00	
		Southwestern Plumbing	\$2,365.00	6/20/2000	June-00	
		Lyon Plumbing	\$1,332.00	6/23/2000	June-00	
		Lyon Plumbing	\$1,175.00	6/23/2000	June-00	
		Lyon Plumbing	\$594.00	6/23/2000	June-00	
		Kelly Plumbing	\$1,802.00	6/25/2000	June-00	
		Lyon Plumbing	\$1,272.00	6/26/2000	June-00	
		Southwestern Plumbing	\$3,133.00	6/26/2000	June-00	
		Kelly Plumbing	\$2,515.50	6/26/2000	June-00	
		Southwestern Plumbing	\$2,434.00	6/26/2000	June-00	
		Kelly Plumbing	\$1,066.00	6/26/2000	June-00	
		Kelly Plumbing	\$1,209.00	6/26/2000	June-00	
		Southwestern Plumbing	\$2,114.00	6/26/2000	June-00	
		Southwestern Plumbing	\$1,789.00	6/26/2000	June-00	
		Kelly Plumbing	\$5,376.72	6/26/2000	June-00	
		Southwestern Plumbing	\$1,414.90	6/26/2000	June-00	550,306.72
		Lyon Plumbing	\$3,587.00	7/2/2000	July-00	
		Lyon Plumbing	\$1,650.00	7/2/2000	July-00	
		Lyon Plumbing	\$1,573.00	7/2/2000	July-00	
		Lyon Plumbing	\$1,837.00	7/2/2000	July-00	
		Southwestern Plumbing	\$1,544.00	7/2/2000	July-00	
		East TN Rooter & Plumbing	\$1,720.00	7/2/2000	July-00	
		Lyon Plumbing	\$2,106.00	7/2/2000	July-00	
		Southwestern Plumbing	\$1,845.00	7/2/2000	July-00	
		Lyon Plumbing	\$1,551.00	7/8/2000	July-00	
		Lyon Plumbing	\$1,550.00	7/8/2000	July-00	
		Kelly Plumbing	\$1,498.00	7/8/2000	July-00	
		Kelly Plumbing	\$1,480.00	7/8/2000	July-00	
		Southwestern Plumbing	\$1,388.00	7/15/2000	July-00	
		Kelly Plumbing	\$1,480.00	7/15/2000	July-00	
		East TN Rooter & Plumbing	\$620.00	7/15/2000	July-00	
		Lyon Plumbing	\$1,716.00	7/15/2000	July-00	
		Lyon Plumbing	\$1,750.00	7/15/2000	July-00	
		Lyon Plumbing	\$1,518.00	7/15/2000	July-00	
		East TN Rooter & Plumbing	\$2,122.00	7/15/2000	July-00	
		Lyon Plumbing Co.	\$1,725.00	7/15/2000	July-00	
		Kelly Plumbing	\$5,881.00	7/22/2000	July-00	
		Lyon Plumbing	\$1,760.00	7/23/2000	July-00	
		Southwestern Plumbing	\$1,938.00	7/23/2000	July-00	
		Lyon Plumbing	\$2,126.00	7/23/2000	July-00	
		Lyon Plumbing	\$1,311.00	7/23/2000	July-00	
		Lyon Plumbing	\$1,732.00	7/23/2000	July-00	
		Lyon Plumbing	\$1,310.00	7/23/2000	July-00	
		Southwestern Plumbing	\$1,315.00	7/23/2000	July-00	
		Lyon Plumbing	\$1,502.00	7/23/2000	July-00	
		Southwestern Plumbing	\$1,211.00	7/23/2000	July-00	
		Southwestern Plumbing	\$1,390.00	7/23/2000	July-00	
		Lyon Plumbing	\$575.00	7/23/2000	July-00	
		Southwestern Plumbing	\$1,714.00	7/23/2000	July-00	
		Lyon Plumbing	\$2,137.00	7/23/2000	July-00	
		Lyon Plumbing	\$2,806.00	7/23/2000	July-00	551,981.00
		East TN Rooter & Plumbing	\$1,212.00	7/23/2000	August-00	
		Lyon Plumbing	\$1,692.50	8/1/2000	August-00	
		Kelly Plumbing	\$7,650.00	8/1/2000	August-00	
		Lyon Plumbing	\$1,617.00	8/13/2000	August-00	
		Lyon Plumbing	\$835.00	8/13/2000	August-00	
		Kelly Plumbing	\$1,560.00	8/12/2000	August-00	
		Kelly Plumbing	\$1,472.00	8/12/2000	August-00	
		Southwestern Plumbing	\$1,294.00	8/12/2000	August-00	
		Southwestern Plumbing	\$1,458.00	8/21/2000	August-00	
		Southwestern Plumbing	\$889.00	8/21/2000	August-00	
		Southwestern Plumbing	\$3,448.00	8/21/2000	August-00	
		Lyon Plumbing	\$1,800.00	8/28/2000	August-00	



DR#	Property Address	Exchanger Name	Minimum Amount	Disbursement Date	Invoice Date	Invoice Balance
		Lyon Plumbing	\$200.00	8/28/2008	August-08	
		Lyon Plumbing	\$1,354.00	8/28/2008	August-08	
		Lyon Plumbing	\$1,386.00	8/28/2008	August-08	
		East TN Rooter & Plumbing	\$218.00	8/28/2008	August-08	
		Lyon Plumbing	\$2,455.00	8/28/2008	August-08	
		Lyon Plumbing	\$706.00	8/28/2008	August-08	\$77,115.14
		East TN Rooter & Plumbing	\$1,991.40	8/2/2009	September-09	
		East TN Rooter & Plumbing	\$1,187.60	8/2/2009	September-09	
		Southwestern Plumbing	\$4,140.00	8/2/2009	September-09	
		Southwestern Plumbing	\$1,678.00	8/2/2009	September-09	
		Southwestern Plumbing	\$2,348.00	8/2/2009	September-09	
		Southwestern Plumbing	\$2,488.00	8/2/2009	September-09	
		Kelly Plumbing	\$1,583.00	8/8/2009	September-09	
		Kelly Plumbing	\$3,880.00	8/8/2009	September-09	
		Lyon Plumbing	\$1,551.00	8/18/2009	September-09	
		Lyon Plumbing	\$1,045.00	8/18/2009	September-09	
		Lyon Plumbing	\$1,382.00	8/18/2009	September-09	
		Lyon Plumbing	\$1,410.00	8/18/2009	September-09	
		Lyon Plumbing	\$2,134.00	8/18/2009	September-09	
		Lyon Plumbing	\$1,419.00	8/18/2009	September-09	
		Lyon Plumbing	\$2,344.00	8/18/2009	September-09	
		Southwestern Plumbing	\$1,588.00	8/23/2009	September-09	
		East TN Rooter & Plumbing	\$1,276.00	8/24/2009	September-09	\$38,526.00
		Kelly Plumbing	\$2,240.00	8/24/2009	October-09	
		Lyon Plumbing	\$1,743.00	10/3/2009	October-09	
		Lyon Plumbing	\$3,322.00	10/3/2009	October-09	
		Lyon Plumbing	\$5,860.00	10/3/2009	October-09	
		Lyon Plumbing	\$1,810.00	10/14/2009	October-09	
		Lyon Plumbing	\$3,100.00	10/14/2009	October-09	
		Lyon Plumbing	\$1,820.00	10/14/2009	October-09	
		Lyon Plumbing	\$2,310.00	10/15/2009	October-09	
		Lyon Plumbing	\$1,803.00	10/15/2009	October-09	
		East TN Rooter & Plumbing	\$1,204.00	10/15/2009	October-09	
		Lyon Plumbing	\$3,347.00	10/15/2009	October-09	
		Southwestern Plumbing	\$1,880.00	10/23/2009	October-09	
		Southwestern Plumbing	\$1,470.00	10/23/2009	October-09	\$29,231.30
		Lyon Plumbing	\$1,332.00	11/5/2009	November-09	
		Lyon Plumbing	\$4,587.00	11/5/2009	November-09	
		Lyon Plumbing	\$1,200.00	11/5/2009	November-09	
		Lyon Plumbing	\$1,870.00	11/6/2009	November-09	
		Lyon Plumbing	\$1,758.00	11/6/2009	November-09	
		Lyon Plumbing	\$1,735.00	11/6/2009	November-09	
		East TN Rooter & Plumbing	\$2,429.00	11/6/2009	November-09	
		Lyon Plumbing	\$1,574.00	11/6/2009	November-09	
		Southwestern Plumbing	\$1,008.00	11/10/2009	November-09	
		East TN Rooter & Plumbing	\$1,160.00	11/10/2009	November-09	
		Kelly Plumbing	\$3,082.75	11/12/2009	November-09	
		East TN Rooter & Plumbing	\$2,090.00	11/20/2009	November-09	
		Lyon Plumbing	\$1,725.00	11/24/2009	November-09	
		Lyon Plumbing	\$3,485.00	11/24/2009	November-09	
		Lyon Plumbing	\$838.00	11/24/2009	November-09	
		Lyon Plumbing	\$1,240.00	11/24/2009	November-09	
		Lyon Plumbing	\$2,550.00	11/24/2009	November-09	
		Lyon Plumbing	\$1,552.00	11/24/2009	November-09	
		Lyon Plumbing	\$1,584.00	11/24/2009	November-09	
		Lyon Plumbing	\$1,552.00	11/24/2009	November-09	\$38,405.15
		East TN Rooter & Plumbing	\$2,480.00	12/5/2009	December-09	
		Southwestern Plumbing	\$3,188.00	12/5/2009	December-09	
		Kelly Plumbing	\$1,680.00	12/5/2009	December-09	
		Southwestern Plumbing	\$1,678.00	12/5/2009	December-09	
		East TN Rooter & Plumbing	\$1,690.00	12/8/2009	December-09	
		East TN Rooter & Plumbing	\$1,455.00	12/09/2009	December-09	
		East TN Rooter & Plumbing	\$1,199.00	12/09/2009	December-09	
		Lyon Plumbing	\$1,161.00	12/09/2009	December-09	\$14,456.00
		Southwestern Plumbing	\$2,009.00	1/2/2009	January-09	
		Lyon Plumbing	\$2,552.00	1/5/2009	January-09	
		Lyon Plumbing	\$1,881.00	1/5/2009	January-09	
		Lyon Plumbing	\$1,820.00	1/5/2009	January-09	
		Lyon Plumbing	\$1,881.00	1/5/2009	January-09	
		Lyon Plumbing	\$1,825.00	1/5/2009	January-09	
		Lyon Plumbing	\$2,848.00	1/8/2009	January-09	
		East TN Rooter & Plumbing	\$1,423.00	1/14/2009	January-09	
		East TN Rooter & Plumbing	\$1,290.00	1/14/2009	January-09	
		East TN Rooter & Plumbing	\$3,690.00	1/14/2009	January-09	
		Southwestern Plumbing	\$848.00	1/14/2009	January-09	
		Southwestern Plumbing	\$1,215.00	1/21/2009	January-09	
		East TN Rooter & Plumbing	\$2,184.00	1/25/2009	January-09	
		East TN Rooter & Plumbing	\$2,540.00	1/25/2009	January-09	\$37,955.30
		East TN Rooter & Plumbing	\$9,875.00	2/1/2009	February-09	
		Paul Hayes Plumbing	\$1,750.00	2/3/2009	February-09	
		East TN Rooter & Plumbing	\$2,170.00	2/3/2009	February-09	
		Lyon Plumbing	\$1,432.50	2/5/2009	February-09	
		Lyon Plumbing	\$1,640.00	2/5/2009	February-09	
		RM Plumbing	\$2,615.00	2/5/2009	February-09	
		Lyon Plumbing	\$1,412.50	2/5/2009	February-09	
		Lyon Plumbing	\$1,806.00	2/5/2009	February-09	
		Lyon Plumbing	\$1,010.00	2/5/2009	February-09	
		Lyon Plumbing	\$1,511.00	2/5/2009	February-09	
		East TN Rooter & Plumbing	\$1,590.00	2/19/2009	February-09	
		RM Plumbing	\$2,584.00	2/19/2009	February-09	
		RM Plumbing	\$1,414.00	2/19/2009	February-09	
		RM Plumbing	\$2,705.00	2/19/2009	February-09	
		Kelly Plumbing	\$3,000.00	2/19/2009	February-09	
		Kelly Plumbing	\$1,879.00	2/19/2009	February-09	
		Paul Hayes Plumbing	\$875.00	2/19/2009	February-09	
		East TN Rooter & Plumbing	\$1,440.00	2/19/2009	February-09	
		Kelly Plumbing	\$1,406.00	2/20/2009	February-09	\$14,060.00
		Paul Hayes Plumbing	\$1,525.00	2/23/2009	March-09	
		East TN Rooter & Plumbing	\$1,590.00	2/24/2009	March-09	

Invoice #	Property Address	Contractor Name	Estimated Amount	Disbursement Date	Invoice Date	Invoice Balance
		East TN Rooter & Plumbing	\$2,847.00	2/25/2009	March-09	
		RM Plumbing	\$1,379.00	2/25/2009	March-09	
		East TN Rooter & Plumbing	\$1,410.00	2/25/2009	March-09	
		Paul Hayes Plumbing	\$1,950.00	3/2/2009	March-09	
		Southwestern Plumbing	\$2,650.00	3/2/2009	March-09	
		Kelly Plumbing	\$1,672.00	3/5/2009	March-09	
		Kelly Plumbing	\$2,684.56	3/5/2009	March-09	
		Lyon Plumbing	\$690.00	3/12/2009	March-09	
		Lyon Plumbing	\$2,205.00	3/12/2009	March-09	
		Lyon Plumbing	\$2,250.00	3/12/2009	March-09	
		Lyon Plumbing	\$1,551.00	3/12/2009	March-09	
		Lyon Plumbing	\$1,271.00	3/12/2009	March-09	
		Lyon Plumbing	\$675.00	3/12/2009	March-09	
		Lyon Plumbing	\$2,015.00	3/12/2009	March-09	
		Lyon Plumbing	\$1,205.00	3/12/2009	March-09	
		Lyon Plumbing	\$1,612.60	3/12/2009	March-09	
		Lyon Plumbing	\$1,958.00	3/12/2009	March-09	
		Lyon Plumbing	\$2,885.00	3/12/2009	March-09	
		Lyon Plumbing	\$1,050.00	3/12/2009	March-09	
		Lyon Plumbing	\$2,223.00	3/12/2009	March-09	
		Lyon Plumbing	\$2,725.00	3/12/2009	March-09	
		Southwestern Plumbing	\$1,144.00	3/13/2009	March-09	
		Southwestern Plumbing	\$2,748.00	3/13/2009	March-09	
		Southwestern Plumbing	\$1,186.00	3/13/2009	March-09	
		East TN Rooter & Plumbing	\$2,040.00	3/13/2009	March-09	
		East TN Rooter & Plumbing	\$2,685.00	3/23/2009	March-09	\$32,843.06
		Southwestern Plumbing	\$2,331.00	3/11/2009	April-09	
		RM Plumbing	\$1,329.00	3/31/2009	April-09	
		Paul Hayes Plumbing	\$690.00	3/21/2009	April-09	
		Southwestern Plumbing	\$1,277.00	3/11/2009	April-09	
		Southwestern Plumbing	\$6,789.00	3/31/2009	April-09	
		RM Plumbing	\$1,957.00	3/31/2009	April-09	
		Southwestern Plumbing	\$4,316.00	3/31/2009	April-09	
		East TN Rooter & Plumbing	\$2,170.00	3/31/2009	April-09	
		Lyon Plumbing	\$1,446.00	4/5/2009	April-09	
		Lyon Plumbing	\$1,680.00	4/5/2009	April-09	
		East TN Rooter & Plumbing	\$1,852.00	4/1/2009	April-09	
		Lyon Plumbing	\$1,620.00	4/13/2009	April-09	
		Lyon Plumbing	\$1,460.00	4/27/2009	April-09	
		Lyon Plumbing	\$3,790.00	4/27/2009	April-09	
		Lyon Plumbing	\$690.00	4/27/2009	April-09	
		Lyon Plumbing	\$1,756.00	4/27/2009	April-09	
		East TN Rooter & Plumbing	\$1,852.00	4/28/2009	April-09	\$37,631.00
		Southwestern Plumbing	\$1,236.00	4/27/2009	May-09	
		Lyon Plumbing	\$3,400.00	4/29/2009	May-09	
		Lyon Plumbing	\$4,650.00	4/30/2009	May-09	
		Lyon Plumbing	\$2,530.00	4/30/2009	May-09	
		Lyon Plumbing	\$672.34	4/30/2009	May-09	
		Lyon Plumbing	\$3,625.00	4/30/2009	May-09	
		Lyon Plumbing	\$4,760.00	4/30/2009	May-09	
		East TN Rooter & Plumbing	\$1,680.00	5/1/2009	May-09	
		Paul Hayes Plumbing	\$1,875.00	5/1/2009	May-09	
		MO's Mechanical	\$1,690.00	5/3/2009	May-09	
		Lyon Plumbing	\$2,650.00	5/1/2009	May-09	
		Paul Hayes Plumbing	\$1,680.00	5/1/2009	May-09	
		Lyon Plumbing	\$1,546.00	5/3/2009	May-09	
		RM Plumbing	\$2,776.00	5/14/2009	May-09	
		MO's Mechanical	\$2,751.58	5/14/2009	May-09	
		RM Plumbing	\$3,429.38	5/14/2009	May-09	
		RM Plumbing	\$2,452.00	5/15/2009	May-09	
		East TN Rooter & Plumbing	\$1,427.00	5/15/2009	May-09	\$44,472.44
		Southwestern Plumbing	\$2,148.00	5/8/2009	June-09	
		Southwestern Plumbing	\$1,625.00	5/8/2009	June-09	
		RM Plumbing	\$2,686.00	5/22/2009	June-09	
		Lyon Plumbing	\$850.00	5/22/2009	June-09	
		Lyon Plumbing	\$1,340.00	6/3/2009	June-09	
		Lyon Plumbing	\$1,750.00	6/3/2009	June-09	
		Lyon Plumbing	\$1,485.00	6/3/2009	June-09	
		Southwestern Plumbing	\$1,298.00	6/3/2009	June-09	
		Southwestern Plumbing	\$1,338.00	6/3/2009	June-09	
		Lyon Plumbing	\$2,300.00	6/3/2009	June-09	
		Lyon Plumbing	\$3,150.00	6/10/2009	June-09	
		Lyon Plumbing	\$2,870.00	6/10/2009	June-09	
		Kelly Plumbing	\$1,421.05	6/12/2009	June-09	
		Paul Hayes Plumbing	\$1,820.00	6/19/2009	June-09	\$25,774.05
		East TN Rooter & Plumbing	\$2,822.98	6/25/2009	July-09	
		East TN Rooter & Plumbing	\$2,016.70	6/25/2009	July-09	
		East TN Rooter & Plumbing	\$2,820.10	6/29/2009	July-09	
		Lyon Plumbing	\$1,450.00	7/2/2009	July-09	
		Lyon Plumbing	\$3,940.00	7/5/2009	July-09	
		Lyon Plumbing	\$1,835.00	7/5/2009	July-09	
		RM Plumbing	\$2,380.00	7/9/2009	July-09	
		Lyon Plumbing	\$1,325.00	7/8/2009	July-09	
		Lyon Plumbing	\$6,200.00	7/8/2009	July-09	
		Lyon Plumbing	\$1,045.00	7/9/2009	July-09	
		Lyon Plumbing	\$4,200.00	7/8/2009	July-09	
		Lyon Plumbing	\$3,680.00	7/8/2009	July-09	
		East TN Rooter & Plumbing	\$2,646.13	7/10/2009	July-09	
		East TN Rooter & Plumbing	\$2,275.00	7/13/2009	July-09	
		East TN Rooter & Plumbing	\$1,820.40	7/16/2009	July-09	
		East TN Rooter & Plumbing	\$2,016.70	7/16/2009	July-09	
		East TN Rooter & Plumbing	\$1,818.20	7/21/2009	July-09	
		Lyon Plumbing	\$4,495.00	7/21/2009	July-09	
		Lyon Plumbing	\$4,323.75	7/27/2009	July-09	\$67,460.94
		RM Plumbing	\$3,096.00	8/5/2009	August-09	
		Lyon Plumbing	\$2,200.00	8/5/2009	August-09	
		MO's Mechanical	\$2,714.00	8/5/2009	August-09	
		Paul Hayes Plumbing	\$2,010.00	8/12/2009	August-09	
		Paul Hayes Plumbing	\$1,320.00	8/12/2009	August-09	

Invoice #	Property Address	Contractor Name	Amount Due	Disbursement Date	Invoice Date	Invoice Balance
		RM Plumbing	\$2,200.00	8/12/2009	August-09	
		East TN Rooter & Plumbing	\$1,769.19	8/12/2009	August-09	
		MO's Mechanical	\$1,852.00	8/16/2009	August-09	
		MO's Mechanical	\$3,046.50	8/18/2009	August-09	
		Lyon Plumbing	\$4,895.00	8/21/2009	August-09	
		Lyon Plumbing	\$2,500.00	8/21/2009	August-09	
		Lyon Plumbing	\$1,625.00	8/21/2009	August-09	
		Lyon Plumbing	\$2,997.00	8/21/2009	August-09	
		Lyon Plumbing	\$1,375.00	8/21/2009	August-09	
		Lyon Plumbing	\$1,420.00	8/21/2009	August-09	\$74,678.21
		RM Plumbing	\$4,225.00	8/8/2009	September-09	
		Paul Hayes Plumbing	\$2,140.00	9/8/2009	September-09	
		Lyon Plumbing	\$2,950.00	9/8/2009	September-09	
		RM Plumbing	\$1,098.00	9/9/2009	September-09	
		East TN Rooter & Plumbing	\$1,847.60	9/9/2009	September-09	
		RM Plumbing	\$1,114.00	9/9/2009	September-09	
		MO's Mechanical	\$2,141.00	9/9/2009	September-09	
		East TN Rooter & Plumbing	\$1,844.80	9/9/2009	September-09	
		East TN Rooter & Plumbing	\$1,422.34	9/9/2009	September-09	
		MO's Mechanical	\$1,842.30	9/11/2009	September-09	
		Lyon Plumbing	\$2,600.00	9/14/2009	September-09	
		Lyon Plumbing	\$1,600.00	9/14/2009	September-09	
		East TN Rooter & Plumbing	\$1,630.35	9/16/2009	September-09	\$28,786.30
		Paul Hayes Plumbing	\$2,146.00	9/19/2009	October-09	
		Lyon Plumbing	\$4,100.00	10/2/2009	October-09	
		MO's Mechanical	\$1,351.68	10/13/2009	October-09	
		Lyon Plumbing	\$2,690.00	10/13/2009	October-09	
		East TN Rooter & Plumbing	\$2,145.00	10/13/2009	October-09	
		East TN Rooter & Plumbing	\$2,405.40	10/14/2009	October-09	
		Lyon Plumbing	\$2,085.00	10/21/2009	October-09	
		RM Plumbing	\$2,455.00	10/21/2009	October-09	\$19,293.05
		Lyon Plumbing	\$4,780.00	11/12/2009	November-09	
		RM Plumbing	\$2,584.00	11/16/2009	November-09	
		Lyon Plumbing	\$2,799.00	11/20/2009	November-09	
		MO's Mechanical	\$1,582.00	11/24/2009	November-09	
		Lyon Plumbing	\$601.00	11/28/2009	November-09	
		MO's Mechanical	\$814.50	11/29/2009	November-09	
		East TN Rooter & Plumbing	\$4,492.50	11/23/2009	November-09	\$18,687.00
		East TN Rooter & Plumbing	\$1,610.00	11/2/2009	December-09	
		RM Plumbing	\$2,043.00	11/20/2009	December-09	
		Lyon Plumbing	\$2,000.00	12/1/2009	December-09	
		Lyon Plumbing	\$3,220.00	12/1/2009	December-09	
		Lyon Plumbing	\$4,200.00	12/15/2009	December-09	
		Paul Hayes Plumbing	\$1,860.00	12/15/2009	December-09	
		Lyon Plumbing	\$2,450.00	12/15/2009	December-09	
		MO's Mechanical	\$2,114.00	12/15/2009	December-09	
		Lyon Plumbing	\$2,325.00	12/15/2009	December-09	
		Lyon Plumbing	\$1,530.00	12/22/2009	December-09	
		Lyon Plumbing	\$2,760.00	12/22/2009	December-09	\$25,008.00
		Lyon Plumbing	\$1,648.00	12/22/2009	January-10	
		RM Plumbing	\$2,891.00	12/31/2009	January-10	
		MO's Mechanical	\$1,853.94	12/31/2009	January-10	
		Lyon Plumbing	\$1,520.00	1/23/2010	January-10	
		Lyon Plumbing	\$1,765.00	1/22/2010	January-10	\$9,675.68
		Lyon Plumbing	\$1,625.00	2/3/2010	February-10	
		Lyon Plumbing	\$3,180.00	2/5/2010	February-10	
		Lyon Plumbing	\$2,710.00	2/5/2010	February-10	
		MO's Mechanical	\$1,051.68	2/10/2010	February-10	
		Lyon Plumbing	\$2,210.00	2/10/2010	February-10	
		Paul Hayes Plumbing	\$1,378.13	2/11/2010	February-10	\$13,564.31
		RM Plumbing	\$1,120.00	2/24/2010	March-10	
		Lyon Plumbing	\$3,380.00	2/24/2010	March-10	
		Lyon Plumbing	\$2,290.00	2/25/2010	March-10	
		Lyon Plumbing	\$1,760.00	3/10/2010	March-10	
		Paul Hayes Plumbing	\$1,670.00	3/11/2010	March-10	\$14,220.00
		East TN Rooter & Plumbing	\$1,285.00	3/25/2010	April-10	
		Paul Hayes Plumbing	\$1,680.00	4/5/2010	April-10	
		Lyon Plumbing	\$1,575.00	4/5/2010	April-10	
		Lyon Plumbing	\$2,875.00	4/16/2010	April-10	
		Lyon Plumbing	\$1,600.00	4/28/2010	April-10	
		Lyon Plumbing	\$1,560.00	4/28/2010	April-10	\$11,185.30
		RM Plumbing	\$350.00	5/4/2010	May-10	
		RM Plumbing	\$942.00	5/4/2010	May-10	
		Lyon Plumbing	\$4,925.00	5/5/2010	May-10	
		Lyon Plumbing	\$3,720.00	5/24/2010	May-10	\$2,957.00
		Paul Hayes Plumbing	\$1,720.00	6/14/2010	June-10	
		Paul Hayes Plumbing	\$1,380.00	6/23/2010	June-10	
		Paul Hayes Plumbing	\$2,390.00	6/23/2010	June-10	
		RM Plumbing	\$2,276.00	6/24/2010	June-10	
		RM Plumbing	\$2,708.00	6/25/2010	June-10	
		Paul Hayes Plumbing	\$720.00	6/25/2010	June-10	
		RM Plumbing	\$2,780.00	6/25/2010	June-10	
		RM Plumbing	\$1,290.00	6/25/2010	June-10	
		Paul Hayes Plumbing	\$2,770.00	6/25/2010	June-10	
		Lyon Plumbing	\$1,875.00	6/25/2010	June-10	
		Lyon Plumbing	\$1,446.00	6/25/2010	June-10	
		RM Plumbing	\$1,591.00	6/25/2010	June-10	
		Lyon Plumbing	\$744.00	6/25/2010	June-10	
		RM Plumbing	\$2,056.00	6/25/2010	June-10	
		Lyon Plumbing	\$2,155.00	6/25/2010	June-10	
		East TN Rooter & Plumbing	\$1,424.00	6/25/2010	June-10	\$29,019.00
		East TN Rooter & Plumbing	\$3,224.00	7/8/2010	July-10	
		East TN Rooter & Plumbing	\$1,444.00	7/8/2010	July-10	
		Lyon Plumbing	\$1,410.00	7/26/2010	July-10	
		Lyon Plumbing	\$3,250.00	7/26/2010	July-10	
		Paul Hayes Plumbing	\$5,380.00	7/26/2010	July-10	
		RM Plumbing	\$1,192.00	7/27/2010	July-10	
		East TN Rooter & Plumbing	\$1,860.00	7/30/2010	July-10	
		Lyon Plumbing	\$1,628.00	7/30/2010	July-10	\$10,529.21

Owner	Property Address	Expenditure Name	Expenditure Amount	Expenditure Date	Invoice Date	Invoice Balance
		Lyon Plumbing	\$2,870.00	8/11/2010	August-10	
		RH Plumbing	\$1,948.00	8/11/2010	August-10	
		Lyon Plumbing	\$2,810.00	8/11/2010	August-10	
		RH Plumbing	\$1,442.00	8/11/2010	August-10	
		East TN Roofer & Plumbing	\$1,312.00	8/16/2010	August-10	
		East TN Roofer & Plumbing	\$3,159.00	8/16/2010	August-10	
		Lyon Plumbing	\$2,195.00	8/16/2010	August-10	
		Lyon Plumbing	\$1,420.00	8/18/2010	August-10	
		Lyon Plumbing	\$2,001.00	8/18/2010	August-10	
		RH Plumbing	\$2,091.00	8/30/2010	August-10	
		RH Plumbing	\$1,431.00	8/30/2010	August-10	
		RH Plumbing	\$2,275.00	8/30/2010	August-10	
		RH Plumbing	\$1,698.00	8/30/2010	August-10	\$27,280.00
		Lyon Plumbing	\$2,601.00	8/25/2010	September-10	
		Lyon Plumbing	\$1,851.00	8/25/2010	September-10	
		Lyon Plumbing	\$1,335.00	8/25/2010	September-10	
		Lyon Plumbing	\$2,110.00	8/25/2010	September-10	
		Lyon Plumbing	\$2,098.00	8/21/2010	September-10	
		Lyon Plumbing	\$2,120.00	8/11/2010	September-10	
		RH Plumbing	\$916.00	8/13/2010	September-10	
		RH Plumbing	\$2,108.00	8/13/2010	September-10	
		RH Plumbing	\$2,250.00	8/13/2010	September-10	
		Paul Hayes Plumbing	\$1,740.00	8/16/2010	September-10	
		Lyon Plumbing	\$1,400.00	8/16/2010	September-10	
		Lyon Plumbing	\$2,825.00	8/16/2010	September-10	
		RH Plumbing	\$4,100.00	8/17/2010	September-10	
		RH Plumbing	\$2,264.00	8/17/2010	September-10	
		Paul Hayes Plumbing	\$1,350.00	8/29/2010	September-10	
		Lyon Plumbing	\$1,529.00	8/23/2010	September-10	
		East TN Roofer & Plumbing	\$1,387.00	8/24/2010	September-10	
		Lyon Plumbing	\$1,845.00	8/24/2010	September-10	
		East TN Roofer & Plumbing	\$1,571.00	8/24/2010	September-10	
		Lyon Plumbing	\$2,506.88	8/28/2010	September-10	
		East TN Roofer & Plumbing	\$5,863.52	8/28/2010	September-10	
		Lyon Plumbing	\$1,295.25	10/1/2010	September-10	\$52,543.60
		Lyon Plumbing	\$2,145.00	10/4/2010	October-10	
		Paul Hayes Plumbing	\$1,443.00	10/4/2010	October-10	
		Paul Hayes Plumbing	\$2,446.00	10/9/2010	October-10	
		Paul Hayes Plumbing	\$2,084.00	10/4/2010	October-10	
		RH Plumbing	\$1,720.00	10/13/2010	October-10	
		RH Plumbing	\$2,350.00	10/13/2010	October-10	
		RH Plumbing	\$2,115.00	10/11/2010	October-10	
		RH Plumbing	\$1,985.00	10/21/2010	October-10	
		Paul Hayes Plumbing	\$2,230.00	10/21/2010	October-10	
		RH Plumbing	\$5,270.00	10/21/2010	October-10	
		Paul Hayes Plumbing	\$1,718.00	10/21/2010	October-10	
		RH Plumbing	\$2,706.98	10/26/2010	October-10	
		East TN Roofer & Plumbing	\$1,717.00	10/24/2010	October-10	
		East TN Roofer & Plumbing	\$2,686.00	10/25/2010	October-10	\$12,895.86
		RH Plumbing	\$5,803.00	11/2/2010	November-10	
		Lyon Plumbing	\$1,380.00	11/3/2010	November-10	
		Lyon Plumbing	\$2,020.00	11/3/2010	November-10	
		Lyon Plumbing	\$1,851.00	11/3/2010	November-10	
		Lyon Plumbing	\$1,738.00	11/9/2010	November-10	
		RH Plumbing	\$2,346.00	11/12/2010	November-10	
		Paul Hayes Plumbing	\$1,940.00	11/12/2010	November-10	
		East TN Roofer & Plumbing	\$2,785.00	11/18/2010	November-10	
		RH Plumbing	\$1,718.00	11/22/2010	November-10	
		RH Plumbing	\$2,738.00	11/22/2010	November-10	\$24,178.00
		RD Plumbing	\$3,090.00	12/3/2010	December-10	
		RD Plumbing	\$2,148.76	12/3/2010	December-10	
		Paul Hayes Plumbing	\$1,640.00	12/5/2010	December-10	
		Paul Hayes Plumbing	\$1,415.00	12/5/2010	December-10	
		Paul Hayes Plumbing	\$2,321.90	12/6/2010	December-10	
		Paul Hayes Plumbing	\$1,710.00	12/5/2010	December-10	
		Paul Hayes Plumbing	\$904.00	12/5/2010	December-10	
		Paul Hayes Plumbing	\$1,708.00	12/6/2010	December-10	
		East TN Roofer & Plumbing	\$2,398.00	12/5/2010	December-10	
		Paul Hayes Plumbing	\$2,205.00	12/5/2010	December-10	
		RH Plumbing	\$3,215.00	12/8/2010	December-10	
		RH Plumbing	\$2,844.00	12/9/2010	December-10	
		RH Plumbing	\$3,213.00	12/10/2010	December-10	
		Lyon Plumbing	\$1,070.00	12/14/2010	December-10	
		Lyon Plumbing	\$1,577.00	12/14/2010	December-10	
		Lyon Plumbing	\$3,647.90	12/14/2010	December-10	
		Lyon Plumbing	\$2,421.23	12/14/2010	December-10	
		Lyon Plumbing	\$1,445.00	12/14/2010	December-10	
		Lyon Plumbing	\$1,448.00	12/14/2010	December-10	
		Lyon Plumbing	\$1,750.00	12/14/2010	December-10	
		East TN Roofer & Plumbing	\$2,788.00	12/15/2010	December-10	
		Paul Hayes Plumbing	\$2,080.00	12/17/2010	December-10	
		Lyon Plumbing	\$2,500.00	12/22/2010	December-10	
		East TN Roofer & Plumbing	\$1,957.60	12/23/2010	December-10	
		East TN Roofer & Plumbing	\$2,241.00	12/23/2010	December-10	
		Lyon Plumbing	\$2,502.00	12/23/2010	December-10	
		Lyon Plumbing	\$2,249.00	12/23/2010	December-10	
		Paul Hayes Plumbing	\$1,855.00	12/28/2010	December-10	
		Paul Hayes Plumbing	\$3,240.00	12/29/2010	December-10	
		Paul Hayes Plumbing	\$2,615.00	12/29/2010	December-10	\$25,406.51
		East TN Roofer & Plumbing	\$2,063.00	1/4/2011	January-11	
		RD Plumbing	\$1,008.00	1/5/2011	January-11	
		RH Plumbing	\$2,108.00	1/5/2011	January-11	
		RH Plumbing	\$2,612.00	1/5/2011	January-11	
		RH Plumbing	\$1,865.00	1/5/2011	January-11	
		RH Plumbing	\$2,816.00	1/5/2011	January-11	
		RH Plumbing	\$2,895.00	1/5/2011	January-11	
		Paul Hayes Plumbing	\$1,560.00	1/11/2011	January-11	
		Paul Hayes Plumbing	\$1,488.00	1/13/2011	January-11	
		RH Plumbing	\$2,157.00	1/18/2011	January-11	



Invoice #	Property Address	Contractor Name	Measurement Amount	Measurement Date	Invoice Date	Invoice Balance
		RD Plumbing	\$2,692.00	1/19/2011	January-11	
		East TN Rooter & Plumbing	\$2,003.00	1/19/2011	January-11	
		Lyon Plumbing	\$1,874.00	1/31/2011	January-11	
		East TN Rooter & Plumbing	\$1,577.00	1/31/2011	January-11	
		Lyon Plumbing	\$1,845.00	1/31/2011	January-11	
		Lyon Plumbing	\$2,370.00	1/31/2011	January-11	
		Lyon Plumbing	\$2,150.00	1/31/2011	January-11	
		RD Plumbing	\$2,387.00	1/31/2011	January-11	\$41,322.70
		Paul Hayes Plumbing	\$2,770.00	2/3/2011	February-11	
		Paul Hayes Plumbing	\$1,805.00	2/3/2011	February-11	
		RM Plumbing	\$2,140.00	2/3/2011	February-11	
		Paul Hayes Plumbing	\$1,995.00	2/3/2011	February-11	
		RM Plumbing	\$1,799.00	2/3/2011	February-11	
		RM Plumbing	\$1,850.00	2/3/2011	February-11	
		Paul Hayes Plumbing	\$1,430.00	2/3/2011	February-11	
		Paul Hayes Plumbing	\$1,845.00	2/3/2011	February-11	
		Lyon Plumbing	\$1,850.00	2/2/2011	February-11	
		Paul Hayes Plumbing	\$1,788.00	2/3/2011	February-11	
		Lyon Plumbing	\$4,690.00	2/2/2011	February-11	
		Paul Hayes Plumbing	\$2,549.00	2/2/2011	February-11	
		Lyon Plumbing	\$1,790.00	2/2/2011	February-11	
		Paul Hayes Plumbing	\$2,085.00	2/2/2011	February-11	
		RM Plumbing	\$1,785.00	2/3/2011	February-11	
		Paul Hayes Plumbing	\$1,435.00	2/3/2011	February-11	
		Paul Hayes Plumbing	\$1,974.00	2/7/2011	February-11	
		Paul Hayes Plumbing	\$1,615.00	2/7/2011	February-11	
		Paul Hayes Plumbing	\$1,705.00	2/7/2011	February-11	
		RD Plumbing	\$2,875.00	2/8/2011	February-11	
		RM Plumbing	\$2,556.00	2/8/2011	February-11	
		RM Plumbing	\$1,790.00	2/9/2011	February-11	
		RM Plumbing	\$2,108.00	2/9/2011	February-11	
		RM Plumbing	\$3,071.00	2/9/2011	February-11	
		East TN Rooter & Plumbing	\$1,739.00	2/15/2011	February-11	
		East TN Rooter & Plumbing	\$2,738.00	2/15/2011	February-11	
		Lyon Plumbing	\$3,880.00	2/16/2011	February-11	
		Lyon Plumbing	\$1,594.00	2/16/2011	February-11	
		Lyon Plumbing	\$2,575.00	2/16/2011	February-11	
		Lyon Plumbing	\$1,953.00	2/16/2011	February-11	
		Lyon Plumbing	\$2,430.00	2/16/2011	February-11	
		Lyon Plumbing	\$3,375.00	2/16/2011	February-11	
		Lyon Plumbing	\$1,788.00	2/16/2011	February-11	
		Paul Hayes Plumbing	\$1,360.00	2/17/2011	February-11	
		Paul Hayes Plumbing	\$2,699.00	2/17/2011	February-11	
		Paul Hayes Plumbing	\$1,955.00	2/17/2011	February-11	
		Lyon Plumbing	\$2,154.00	2/24/2011	February-11	
		Lyon Plumbing	\$1,910.00	2/24/2011	February-11	
		East TN Rooter & Plumbing	\$5,679.55	2/24/2011	February-11	
		Lyon Plumbing	\$1,743.00	2/28/2011	February-11	\$52,544.50
		RM Plumbing	\$2,883.00	3/1/2011	March-11	
		RM Plumbing	\$1,855.00	3/1/2011	March-11	
		RM Plumbing	\$2,289.00	3/1/2011	March-11	
		RM Plumbing	\$2,353.00	3/1/2011	March-11	
		RM Plumbing	\$1,849.00	3/1/2011	March-11	
		Paul Hayes Plumbing	\$1,518.00	3/1/2011	March-11	
		RM Plumbing	\$1,555.00	3/1/2011	March-11	
		RM Plumbing	\$2,648.00	3/1/2011	March-11	
		RM Plumbing	\$1,678.00	3/1/2011	March-11	
		Paul Hayes Plumbing	\$1,854.00	3/4/2011	March-11	
		RM Plumbing	\$2,849.00	3/4/2011	March-11	
		RM Plumbing	\$2,874.00	3/4/2011	March-11	
		Paul Hayes Plumbing	\$1,240.00	3/4/2011	March-11	
		Lyon Plumbing	\$2,875.00	3/7/2011	March-11	
		Lyon Plumbing	\$2,068.00	3/7/2011	March-11	
		Lyon Plumbing	\$2,768.00	3/7/2011	March-11	
		RD Plumbing	\$1,935.00	3/8/2011	March-11	
		RD Plumbing	\$2,578.00	3/8/2011	March-11	
		East TN Rooter & Plumbing	\$1,657.00	3/8/2011	March-11	
		East TN Rooter & Plumbing	\$1,485.00	3/8/2011	March-11	
		East TN Rooter & Plumbing	\$2,888.00	3/8/2011	March-11	
		RD Plumbing	\$2,377.00	3/9/2011	March-11	
		East TN Rooter & Plumbing	\$1,872.00	3/8/2011	March-11	\$52,117.90
		Lyon Plumbing	\$845.75	4/2/2011	April-11	
		Lyon Plumbing	\$2,190.00	4/2/2011	April-11	
		Lyon Plumbing	\$2,350.00	4/3/2011	April-11	
		Paul Hayes Plumbing	\$1,760.00	4/5/2011	April-11	
		Paul Hayes Plumbing	\$2,488.00	4/5/2011	April-11	
		Lyon Plumbing	\$3,230.00	4/5/2011	April-11	
		Paul Hayes Plumbing	\$2,066.00	4/5/2011	April-11	
		East TN Rooter & Plumbing	\$2,273.00	4/5/2011	April-11	
		Paul Hayes Plumbing	\$2,006.00	4/8/2011	April-11	
		East TN Rooter & Plumbing	\$2,707.00	4/8/2011	April-11	
		Lyon Plumbing	\$2,240.00	4/8/2011	April-11	
		Paul Hayes Plumbing	\$2,184.00	4/8/2011	April-11	
		RM Plumbing	\$1,600.00	4/14/2011	April-11	
		RM Plumbing	\$2,588.00	4/14/2011	April-11	
		RM Plumbing	\$3,680.00	4/14/2011	April-11	
		RM Plumbing	\$4,259.00	4/14/2011	April-11	
		RM Plumbing	\$1,873.00	4/14/2011	April-11	
		RM Plumbing	\$5,869.00	4/14/2011	April-11	
		Lyon Plumbing	\$1,650.00	4/15/2011	April-11	
		East TN Rooter & Plumbing	\$1,811.00	4/15/2011	April-11	
		East TN Rooter & Plumbing	\$2,217.00	4/15/2011	April-11	
		Lyon Plumbing	\$2,790.00	4/18/2011	April-11	
		RM Plumbing	\$2,786.00	4/20/2011	April-11	
		Paul Hayes Plumbing	\$1,438.00	4/22/2011	April-11	
		Paul Hayes Plumbing	\$2,354.00	4/22/2011	April-11	
		RD Plumbing	\$1,696.00	4/22/2011	April-11	
		Paul Hayes Plumbing	\$3,006.00	4/22/2011	April-11	

Invoice #	Property Address	Contractor Name	Minimum Invoice Amount	Invoice Date	Invoice Date	Invoice Balance
		Paul Hayes Plumbing	\$1,883.00	4/22/2011	April-11	
		Paul Hayes Plumbing	\$1,844.00	4/23/2011	April-11	
		RM Plumbing	\$5,674.00	4/24/2011	April-11	
		East TN Rooter & Plumbing	\$1,739.00	4/24/2011	April-11	
		RM Plumbing	\$2,251.00	4/24/2011	April-11	
		RM Plumbing	\$2,067.00	4/24/2011	April-11	
		RM Plumbing	\$1,081.00	4/24/2011	April-11	
		RM Plumbing	\$2,746.00	4/24/2011	April-11	
		RM Plumbing	\$2,747.00	4/24/2011	April-11	\$92,183.25
		Paul Hayes Plumbing	\$1,644.00	5/4/2011	May-11	
		Paul Hayes Plumbing	\$2,373.00	5/4/2011	May-11	
		Paul Hayes Plumbing	\$1,978.00	5/4/2011	May-11	
		Lyon Plumbing	\$2,500.00	5/4/2011	May-11	
		Paul Hayes Plumbing	\$1,790.00	5/4/2011	May-11	
		Lyon Plumbing	\$2,200.00	5/10/2011	May-11	
		Paul Hayes Plumbing	\$2,333.00	5/12/2011	May-11	
		Lyon Plumbing	\$2,045.00	5/12/2011	May-11	
		East TN Rooter & Plumbing	\$2,578.00	5/12/2011	May-11	
		Lyon Plumbing	\$4,555.00	5/12/2011	May-11	
		Lyon Plumbing	\$2,215.00	5/20/2011	May-11	
		East TN Rooter & Plumbing	\$1,447.00	5/20/2011	May-11	
		East TN Rooter & Plumbing	\$1,087.00	5/20/2011	May-11	
		RM Plumbing	\$2,089.00	5/24/2011	May-11	
		RD Plumbing	\$1,676.00	5/24/2011	May-11	
		RD Plumbing	\$1,611.00	5/24/2011	May-11	
		RD Plumbing	\$2,739.00	5/24/2011	May-11	
		East TN Rooter & Plumbing	\$2,049.00	5/24/2011	May-11	
		Lyon Plumbing	\$3,850.00	5/24/2011	May-11	
		Lyon Plumbing	\$2,470.00	5/24/2011	May-11	
		Paul Hayes Plumbing	\$2,554.00	5/27/2011	May-11	
		East TN Rooter & Plumbing	\$1,588.00	5/27/2011	May-11	
		Paul Hayes Plumbing	\$3,849.00	5/27/2011	May-11	\$56,640.00
		Lyon Plumbing	\$2,810.00	6/5/2011	June-11	
		Lyon Plumbing	\$2,175.00	6/5/2011	June-11	
		RD Plumbing	\$3,138.00	6/5/2011	June-11	
		Lyon Plumbing	\$1,020.00	6/5/2011	June-11	
		RD Plumbing	\$1,592.50	6/5/2011	June-11	
		Paul Hayes Plumbing	\$1,858.00	6/7/2011	June-11	
		Paul Hayes Plumbing	\$1,724.00	6/7/2011	June-11	
		Paul Hayes Plumbing	\$1,739.00	6/7/2011	June-11	
		Paul Hayes Plumbing	\$1,628.00	6/7/2011	June-11	
		RM Plumbing	\$1,295.00	6/8/2011	June-11	
		RM Plumbing	\$5,263.00	6/8/2011	June-11	
		RM Plumbing	\$2,624.00	6/8/2011	June-11	
		RM Plumbing	\$4,503.00	6/11/2011	June-11	
		Lyon Plumbing	\$2,447.00	6/11/2011	June-11	
		East TN Rooter & Plumbing	\$2,712.00	6/14/2011	June-11	
		Paul Hayes Plumbing	\$2,605.00	6/14/2011	June-11	
		Paul Hayes Plumbing	\$1,640.00	6/15/2011	June-11	
		Paul Hayes Plumbing	\$1,740.00	6/15/2011	June-11	
		RD Plumbing	\$1,610.00	6/15/2011	June-11	
		Paul Hayes Plumbing	\$1,879.00	6/15/2011	June-11	
		East TN Rooter & Plumbing	\$2,017.00	6/15/2011	June-11	
		RM Plumbing	\$1,872.00	6/17/2011	June-11	
		RM Plumbing	\$2,314.00	6/17/2011	June-11	
		RM Plumbing	\$3,679.00	6/17/2011	June-11	
		RM Plumbing	\$1,472.00	6/17/2011	June-11	
		RM Plumbing	\$5,063.00	6/17/2011	June-11	
		RM Plumbing	\$2,819.00	6/17/2011	June-11	
		Lyon Plumbing	\$3,350.00	6/23/2011	June-11	
		Lyon Plumbing	\$2,675.00	6/23/2011	June-11	
		Paul Hayes Plumbing	\$2,389.00	6/23/2011	June-11	
		RM Plumbing	\$3,355.00	6/24/2011	June-11	
		Lyon Plumbing	\$1,900.00	6/24/2011	June-11	
		Lyon Plumbing	\$1,675.00	6/24/2011	June-11	
		Lyon Plumbing	\$2,707.00	6/24/2011	June-11	
		RM Plumbing	\$2,720.00	6/24/2011	June-11	
		RM Plumbing	\$2,580.00	6/24/2011	June-11	
		Lyon Plumbing	\$1,525.00	6/24/2011	June-11	
		Lyon Plumbing	\$2,370.00	6/24/2011	June-11	
		Lyon Plumbing	\$3,500.00	6/24/2011	June-11	
		RM Plumbing	\$2,841.00	6/24/2011	June-11	
		Lyon Plumbing	\$5,240.00	6/24/2011	June-11	
		Paul Hayes Plumbing	\$2,414.00	6/25/2011	June-11	
		Paul Hayes Plumbing	\$3,007.00	6/25/2011	June-11	\$110,562.50
		Lyon Plumbing	\$2,510.00	7/6/2011	July-11	
		RD Plumbing	\$1,654.00	7/6/2011	July-11	
		RD Plumbing	\$2,753.00	7/6/2011	July-11	
		Paul Hayes Plumbing	\$1,814.00	7/6/2011	July-11	
		Lyon Plumbing	\$3,065.00	7/6/2011	July-11	
		RD Plumbing	\$3,130.00	7/5/2011	July-11	
		Paul Hayes Plumbing	\$2,414.00	7/11/2011	July-11	
		Paul Hayes Plumbing	\$2,040.00	7/11/2011	July-11	
		Paul Hayes Plumbing	\$1,864.00	7/11/2011	July-11	
		Paul Hayes Plumbing	\$1,690.00	7/11/2011	July-11	
		East TN Rooter & Plumbing	\$2,657.00	7/13/2011	July-11	
		RM Plumbing	\$2,820.00	7/20/2011	July-11	
		RM Plumbing	\$2,702.00	7/20/2011	July-11	
		RM Plumbing	\$2,384.00	7/20/2011	July-11	
		RM Plumbing	\$2,213.00	7/20/2011	July-11	
		RM Plumbing	\$2,310.00	7/20/2011	July-11	
		RM Plumbing	\$3,201.00	7/27/2011	July-11	
		Paul Hayes Plumbing	\$2,610.00	7/27/2011	July-11	
		East TN Rooter & Plumbing	\$2,067.00	7/27/2011	July-11	
		East TN Rooter & Plumbing	\$2,217.00	7/27/2011	July-11	
		Paul Hayes Plumbing	\$1,706.00	7/27/2011	July-11	\$71,006.00
		Lyon Plumbing	\$1,700.00	7/28/2011	August-11	
		Lyon Plumbing	\$2,000.00	7/28/2011	August-11	
		Lyon Plumbing	\$2,200.00	7/28/2011	August-11	

Owner	Property Address	Contractor Name	Minimum Amount	Disbursement Date	Invoice Date	Invoice Reference
		Paul Hayes Plumbing	\$2,629.00	8/2/2011	August-11	
		Paul Hayes Plumbing	\$2,319.00	8/3/2011	August-11	
		RD Plumbing	\$2,721.00	8/1/2011	August-11	
		RD Plumbing	\$2,415.00	8/5/2011	August-11	
		Paul Hayes Plumbing	\$2,454.00	8/8/2011	August-11	
		Paul Hayes Plumbing	\$1,674.00	8/8/2011	August-11	
		Paul Hayes Plumbing	\$1,614.00	8/8/2011	August-11	
		Paul Hayes Plumbing	\$2,429.00	8/8/2011	August-11	
		Paul Hayes Plumbing	\$2,079.00	8/8/2011	August-11	
		RD Plumbing	\$3,000.00	8/9/2011	August-11	
		RD Plumbing	\$3,042.00	8/19/2011	August-11	
		RD Plumbing	\$641.75	8/19/2011	August-11	
		RD Plumbing	\$2,698.00	8/10/2011	August-11	
		Lyon Plumbing	\$2,875.00	8/15/2011	August-11	
		Lyon Plumbing	\$1,660.00	8/15/2011	August-11	
		East TN Roofer & Plumbing	\$3,427.00	8/15/2011	August-11	
		East TN Roofer & Plumbing	\$3,427.00	8/15/2011	August-11	
		East TN Roofer & Plumbing	\$1,467.00	8/15/2011	August-11	
		Paul Hayes Plumbing	\$2,719.00	8/16/2011	August-11	
		RD Plumbing	\$1,520.00	8/18/2011	August-11	
		RD Plumbing	\$904.00	8/28/2011	August-11	
		Lyon Plumbing	\$1,890.00	8/30/2011	August-11	
		Lyon Plumbing	\$2,595.00	8/30/2011	August-11	
		Lyon Plumbing	\$2,775.00	8/30/2011	August-11	
		RD Plumbing	\$3,500.00	8/31/2011	August-11	
		RD Plumbing	\$3,183.00	8/31/2011	August-11	\$95,293.75
		Lyon Plumbing	\$2,060.00	8/31/2011	September-11	
		RD Plumbing	\$4,310.00	8/22/2011	September-11	
		RD Plumbing	\$2,812.00	8/22/2011	September-11	
		RD Plumbing	\$2,825.00	8/22/2011	September-11	
		RD Plumbing	\$2,124.00	8/22/2011	September-11	
		Lyon Plumbing	\$2,772.00	8/29/2011	September-11	
		Lyon Plumbing	\$1,600.00	10/1/2011	September-11	
		Lyon Plumbing	\$2,190.00	10/1/2011	September-11	\$22,743.00
		RD Plumbing	\$2,844.00	10/12/2011	October-11	
		RD Plumbing	\$2,911.00	10/25/2011	October-11	\$5,727.00
		Lyon Plumbing	\$3,220.00	11/8/2011	November-11	
		Lyon Plumbing	\$3,228.00	11/8/2011	November-11	
		Paul Hayes Plumbing	\$2,108.00	11/17/2011	November-11	\$8,557.00
		Paul Hayes Plumbing	\$3,128.00	12/5/2011	December-11	
		RD Plumbing	\$1,549.00	12/9/2011	December-11	
		Paul Hayes Plumbing	\$1,129.00	12/9/2011	December-11	
		East TN Roofer & Plumbing	\$1,888.00	12/21/2011	December-11	
		Paul Hayes Plumbing	\$2,204.00	12/21/2011	December-11	
		Paul Hayes Plumbing	\$1,784.00	12/21/2011	December-11	
		Lyon Plumbing	\$2,895.00	12/21/2011	December-11	
		Paul Hayes Plumbing	\$2,478.00	12/21/2011	December-11	
		Lyon Plumbing	\$1,800.00	12/21/2011	December-11	
		Paul Hayes Plumbing	\$2,314.00	12/21/2011	December-11	
		Lyon Plumbing	\$2,355.00	12/21/2011	December-11	
		Paul Hayes Plumbing	\$1,768.00	12/21/2011	December-11	\$25,548.00
		RD Plumbing	\$1,584.00	12/30/2011	January-12	
		RD Plumbing	\$1,891.00	1/13/2012	January-12	
		Paul Hayes Plumbing	\$1,678.00	1/18/2012	January-12	
		Paul Hayes Plumbing	\$2,249.00	1/19/2012	January-12	
		Lyon Plumbing	\$598.00	1/25/2012	January-12	
		Lyon Plumbing	\$2,000.00	1/25/2012	January-12	\$10,400.00
		Paul Hayes Plumbing	\$3,184.00	2/2/2012	February-12	
		Paul Hayes Plumbing	\$2,779.00	2/2/2012	February-12	
		Lyon Plumbing	\$1,675.00	2/8/2012	February-12	
		Lyon Plumbing	\$2,028.00	2/8/2012	February-12	
		Lyon Plumbing	\$3,100.00	2/8/2012	February-12	
		Lyon Plumbing	\$2,320.00	2/8/2012	February-12	
		Lyon Plumbing	\$1,100.00	2/8/2012	February-12	
		Lyon Plumbing	\$2,120.00	2/8/2012	February-12	
		Paul Hayes Plumbing	\$1,435.00	2/15/2012	February-12	
		Paul Hayes Plumbing	\$1,914.00	2/15/2012	February-12	
		Lyon Plumbing	\$2,455.00	2/28/2012	February-12	
		Paul Hayes Plumbing	\$1,904.00	2/28/2012	February-12	\$25,578.00
		Paul Hayes Plumbing	\$1,678.00	3/9/2012	March-12	
		Paul Hayes Plumbing	\$1,729.00	3/18/2012	March-12	
		RD Plumbing	\$2,573.00	3/14/2012	March-12	
		Lyon Plumbing	\$3,250.00	3/14/2012	March-12	
		Lyon Plumbing	\$595.00	3/14/2012	March-12	
		Lyon Plumbing	\$2,850.00	3/15/2012	March-12	
		Paul Hayes Plumbing	\$1,548.00	3/16/2012	March-12	
		Lyon Plumbing	\$2,125.00	3/16/2012	March-12	
		Lyon Plumbing	\$2,250.00	3/16/2012	March-12	
		Lyon Plumbing	\$1,600.00	3/26/2012	March-12	
		Lyon Plumbing	\$1,885.00	3/29/2012	March-12	
		Paul Hayes Plumbing	\$2,402.00	4/2/2012	March-12	\$25,381.00
		Lyon Plumbing	\$2,685.00	3/26/2012	March-12	
		Lyon Plumbing	\$2,850.00	3/31/2012	March-12	
		Lyon Plumbing	\$2,375.00	3/31/2012	March-12	
		Lyon Plumbing	\$2,100.00	3/31/2012	March-12	
		Lyon Plumbing	\$1,780.00	3/31/2012	March-12	\$11,890.00
		Lyon Plumbing	\$2,600.00	4/30/2012	April-12	
		Lyon Plumbing	\$2,750.00	5/3/2012	April-12	
		Lyon Plumbing	\$2,700.00	5/3/2012	April-12	
		Lyon Plumbing	\$5,696.00	5/5/2012	April-12	\$18,659.00
Total			\$7,070,884.21			\$2,070,584.31

## **Appendix B**

# **Infiltration and Inflow Analysis**

## SEP Data Analysis - CCTV vs. Smoke Testing

Private Lateral CCTV: Detection of average daily infiltration sources	
Number of Laterals CCTV'ed (2005-Nov 2011)	8,359
<b>A. Defective Laterals with Infiltration PACP Codes</b>	
Number of Occurances with Infiltration PACP Codes	165
Number of Laterals with Infiltration PACP Codes	117
Occurances of Infiltration per Lateral with Infiltration PACP Codes	1.41
Failure Rate of Laterals CCTV'ed with Active Infiltration	1.40%
Projected Number of Laterals with Active Infiltration for Entire System	956
Average unit flow from Laterals with Infiltration for Entire System	0.06
Projected Infiltration for Entire System from Lateral with Infiltration PACP Codes, gpm	61
<b>B. Defective Laterals with Non-Infiltration PACP Codes</b>	
Defective laterals = 38% systemwide	25,959
Defective laterals without infiltration PACP codes	25,003
Assume infiltration = 25% of rate of laterals with infiltration of PACP Codes, gpm per lateral	0.02
Projected Infiltration for Entire System from laterals without Infiltration PACP Codes, gpm	396
<b>C. Total projected flow from laterals with and without infiltration PACP Codes, gpm</b>	<b>457</b>
<b>D. Total projected flow from laterals with and without infiltration PACP Codes, MGD</b>	<b>0.66</b>

Smoke Testing: Detection of peak flow inflow sources	
<b>A. Peak Inflow from roof drains tied into sewer laterals</b>	
Peak inflow from one average Roof for 2-year rain event, gpm	16
Roof Drain Connections per Smoke Test Data	74
Footage Associated with Roof Drain Connections, feet	2,995,766
Projected Number of Roof Drain Connections for Entire System	172
Projected Peak Inflow for Entire System from roof drains, gpm	2,826
Peak Inflow per House, gpm	0.04
Projected Peak Inflow for Entire System from roof drains, MGD	4.1
<b>B. Peak Inflow from area drains tied into sewer system</b>	
Peak Inflow from one average Area Drain for 2-year rain event, gpm	24
Area Drain Connections per Smoke Test Data	62
Footage Associated with Area Drain Connections, feet	2,995,766
Projected Number of Area Drain Connections for Entire System	144
Projected Peak Inflow for Entire System from area drains, gpm	3,393
Peak Inflow per House, gpm	0.050
Projected Peak Inflow for Entire System from area drains, MGD	4.9
<b>C. Total peak projected flow from roof drains and area drains, gpm</b>	<b>6,218</b>
<b>D. Total peak projected flow from roof drains and area drains, MGC</b>	<b>9.0</b>

Reference Data	
A = Surface Area of average roof, sq feet	2,000
A = Drainage Area of average yard drain, sq feet (1/8 acre)	5,445
c = Rational Method Runoff Coefficient, roof	0.95
c = Rational Method Runoff Coefficient, yard, with mix of 25% pavement @ 0.95 and 75% grass @ 0.35	0.50
I = Rainfall Intensity, in/hr	0.84
Number of Sewer Customers	68,314
KUB Collection System Length, Miles	1,320
KUB Collection System Length, Feet	6,969,600
Cost to CCTV Laterals, per lateral	\$175.00
Cost to Smoke Test, per foot	\$0.38
Cost to Smoke Test, per lateral	\$38.77

Calculation of Weighted Average of Infiltration Rate for laterals with infiltration PACP Codes			
	Rate	# Occurances	gpm
Dripper, gpm	0.01	21	0.21
Runner, gpm	0.10	31	3.1
Gusher, gpm	0.50	8	4
Weeper / Stain, gpm	0.001	105	0.11
		165	7.42
Weighted Avg, gpm			0.045
Defects per lateral with Infiltration PACP Codes			1.41
Total flow per lateral with Infiltration PACP Codes, gpm			0.06

Calculation of peak runoff rate from 1 roof drain tied into sewer lateral, gpm	$Q = C I A$
	16

Calculation of peak runoff rate from 1 area drain tied into sewer lateral, gpm	$Q = C I A$
	24



## Comparison of CCTV and Lateral Inspection as I/I Reduction Tools

Type of I/I	Groundwater infiltration from lateral defects	Peak inflow from roof & area drains tied into lateral
Method of detection	CCTV	Smoke Testing
Defective laterals due to active infiltration or smoke	1.40%	0.50%
Defective laterals due to condition assessment, with no visible infiltration	36%	N/A
Avg flow per defective lateral (active or cond assmnt), gpm	0.02	16 gpm for roof drains, 24 gpm for area drains
	Continuous Flow	Peak flow during rain event
Projected total flow, MGD	0.66	9
Percent of WWTP flows	2%	5%
	Based on Avg Annual Flow of 40 MGD	Based on Max Daily Flow of 188 MGD
Total cost to detect flows	\$12 M	\$2.6 M
	Based on \$175 / house x 68,314 customers	Based on \$0.38 / ft x 6,969,600
Unit cost to detect flows, \$ / gpd	\$18.18	\$0.29
Unit cost to correct flows, \$ / gpd	\$86.53	\$0.05
	Based on 38% laterals replaced @ \$2,200 each	Based on 0.5% roof or area drain repair @ \$1,500 each (172 roof drains @ \$150 ea + 144 area drains @ \$3,000 ea)
Total unit cost to detect and correct flows	\$104.71	\$0.34

**Appendix C**  
**Brochures, Databases, and  
Software relating to the SEP**

To protect our customers' privacy, copies of KUB databases and software, which include customer names, addresses, and other personal information, were omitted from this copy of the report.

1. Representative copies of Enforcement Notification Letters mailed to customers (9 letters)
2. 2008 Assistance Offer Letters (3 letters)
3. 2010 Assistance Offer Letters (3 letters)
4. 2005 Bill Stuffer
5. Postcard stand displayed in KUB payment centers
6. Brochure used July 2005 to December 2006
7. Brochure used January 2007 to April 2012
8. Brochure insert used May 2007 to April 2012
9. 2008 Postcard advertising an upcoming meeting
10. 2009 PACE10 Handout
11. 2010 Postcard for Assistance Offer
12. 2011 Postcard concerning upcoming lateral inspections

Day 0  
Initial notice packet



## URGENT: FIRST NOTICE OF NONCOMPLIANCE

### Property Owners Must Repair Private Sewer Laterals

Date of Notice: DATE

Via Certified Mail

«First\_Name» «Last\_Name»  
«Address\_Line\_1»  
«City», «State» «ZIP\_Code»

Re: «Property\_Address»

Under a Federal Consent Decree, KUB must repair its defective sewer lines and inspect private sewer laterals [the pipes that connect customers' property to KUB's sewer system]. KUB must also notify customers of lateral problems and ensure they make repairs and remove prohibited connections, as required by the decree, KUB regulations, and City plumbing codes.

**KUB's PACE 10 sewer inspections found a problem with your property's private sewer lateral. This is your first notice of the need for repairs. You must make repairs, remove prohibited connections and have the work inspected and approved by the City Plumbing Inspector within 120 days of the date of this notice. If you do not make repairs, KUB will disconnect your water service.**

**Please Note:** As part of KUB's notification process, you will receive a Notice of Violation and Termination of Service if the work is not completed and approved within 30 days. [See the enclosed brochure for a schedule of notification and enforcement.] If you have questions or information that would allow KUB to conclude your lateral is not defective, please call me at 594-8270. If you receive a Notice of Violation and Termination of Service, you have 14 days to appeal such notice to KUB.

#### Instructions

#### **Free grants and no-interest loans available**

- ☐ Find out if you are eligible for a free grant or no-interest loan: Call the Knoxville-Knox County Community Action Committee (CAC) immediately at 637-9073. Approval is based on income, which is adjusted for family size, medical expenses, etc. If you do qualify for aid, CAC will arrange for a plumber for you.
- ☐ Contact a plumber to schedule the needed work if you do not qualify for aid. For a list of plumbers, call 311 to access City services or visit [www.cityofknoxville.org](http://www.cityofknoxville.org) or [www.kub.org](http://www.kub.org). Plumbers on the list are licensed and bonded, but their charges will vary. You may want to get several estimates.
- ☐ Give the plumber the enclosed Description of Lateral Defect.
- ☐ Obtain a City plumbing permit only if you are making repairs. If you use a plumber, he obtains the permit. Remember to call Tennessee One Call at 1-800-351-1111 72 hours before you dig.
- ☐ Call the City Plumbing Inspector at 311, after repairs are made, for an inspection before the pipe is covered.

If you have questions about the repair process or appeals, please contact me at 594-8270.

Sincerely,

A handwritten signature in cursive script that reads 'Leanne Pressley'.

Leanne Pressley  
Private Lateral Program Coordinator

Enclosures: Understanding Your Sewer Lateral Brochure [with notices timeline/financial aid information]  
Description of Lateral Defect

CC: Roy Branch, Chief Plumbing Inspector, City of Knoxville

<sup>1</sup>This project [Grant Program] was undertaken [by KUB] in connection with the settlement of a civil enforcement action taken by the United States for violations of the Clean Water Act.

**Assistance for Spanish-speaking customers:** Los clientes de habla hispana que necesitan asistencia llamen a KUB al numero 524-2911 v opriman numero 8. Por favor informe a KUB que recibió una carta de NONC.



Day 30

Second Notice, permit not pulled



## URGENT: NOTICE OF VIOLATION AND TERMINATION OF SERVICE

Date of Notice: DATE

Via Certified Mail

«First\_Name» «Last\_Name»

«Address\_Line\_1»

«City», «State» «ZIP\_Code»

Re: Notice of Noncompliance (NONC) dated \_\_\_\_\_; «Property\_Address»

KUB previously sent you a Notice of Noncompliance about a problem with your private sewer lateral [the pipe that connects your property to KUB's sewer system]. Receipt of this Notice of Violation and Termination of Service (NOV) means you did not have repairs completed and approved by the City Plumbing Inspector within 30 days.

KUB issued this NOV as part of our standard enforcement process to ensure you are taking the proper steps to have the work completed and approved within 120 days from the date of the original NONC above. If you do not comply within that timeframe, KUB will disconnect your water service on \_\_\_\_\_.

**Please Note: You have 14 days from this notice to appeal to KUB.**

### Instructions

- ☐ Find out if you are eligible for a free grant or no-interest loan: Call the Knoxville-Knox County Community Action Committee (CAC) immediately at 637-9073. Approval is based on income, which is adjusted for family size, medical expenses, etc. If you do qualify for aid, CAC will arrange for a plumber for you.
- ☐ Contact a plumber to schedule the needed work if you do not qualify for aid. For a list of plumbers, call 311 to access City services. You can also find the list on the City web site at [www.cityofknoxville.org](http://www.cityofknoxville.org) or on the KUB site at [www.kub.org](http://www.kub.org). Plumbers on the list are licensed and bonded, but their charges will vary. You may want to get several estimates.
- ☐ Give the plumber the description of the problem that KUB provided in your first notice.
- ☐ Obtain a City plumbing permit only if you are making the repairs. If you use a plumber, he obtains the permit. Remember to call Tennessee One Call at 1-800-351-1111 72 hours before you dig.
- ☐ Call the City Plumbing Inspector at 311, after repairs are made, for an inspection before the pipe is covered.

If you have questions about the repair process or appeals, please contact me at 594-8270.

Sincerely,

A handwritten signature in cursive script that reads 'Leanne Pressley'.

Leanne Pressley  
Private Lateral Program Coordinator

CC: Roy Branch, Chief Plumbing Inspector, City of Knoxville

<sup>1</sup>This project [Grant Program] was undertaken [by KUB] in connection with the settlement of a civil enforcement action taken by the United States for violations of the Clean Water Act.

**Assistance for Spanish-speaking customers:** Los clientes de habla hispana que necesitan asistencia llamen a KUB al numero 524-2911 y oprima numero 8. Por favor informele a KUB que recibió una carta de NOVA.

Day 30

Second Notice, permit pulled



## NOTICE OF VIOLATION

### Reminder to Complete Private Sewer Lateral Repairs

Date of Notice: DATE

Via Certified Mail

«First\_Name» «Last\_Name»

«Address\_Line\_1»

«City», «State» «ZIP\_Code»

Re: Notice of Noncompliance (NONC) dated \_\_\_\_\_; «Property\_Address»

Thank you for applying for a City Plumbing Permit to repair your private sewer lateral. We appreciate your efforts to help protect our environment and the proper operation of our wastewater system.

You are receiving this Notice of Violation (NOV), however, as part of our standard enforcement process. KUB sends an NOV to all customers who do not have repairs completed and inspected within 30 days of the NONC. Because you have applied for a plumbing permit to make repairs, this NOV is simply a reminder that you must have the repairs completed within 120 days of the date of the original NONC listed above.

**Please Note:** Contact the City Plumbing Inspector at 311 to arrange an inspection as soon as the work is completed and before the pipe is covered.

If you have questions or have new information that would lead you to appeal the decision that your lateral is defective, please call me at 594-8270. Remember, you have 14 days from receipt of this NOV to appeal to KUB.

Sincerely,

A handwritten signature in cursive script that reads 'Leanne Pressley'.

Leanne Pressley  
Private Lateral Program Coordinator

CC: Roy Branch, Chief Plumbing Inspector, City of Knoxville

**Assistance for Spanish-speaking customers:** Los clientes de habla hispana que necesitan asistencia llamen a KUB al numero 524-2911 y oprima numero 8. Por favor informe a KUB que recibió una carta de NOVB.

Day 90  
Third Notice



## URGENT FINAL NOTICE Impending Water Service Termination

Date of Notice: DATE

Via Certified Mail

«First\_Name» «Last\_Name»  
«Address\_Line\_1»  
«City», «State» «ZIP\_Code»

**Re: Notice of Noncompliance dated \_\_\_\_\_ and  
Notice of Violation and Termination of Service dated \_\_\_\_\_; «Property\_Address»**

Your water service is scheduled to be terminated. KUB has contacted you several times about a problem with your sewer lateral that violates KUB rules and regulations and City Plumbing Codes. Our records show you have not completed required work and did not file an appeal within 14 days after you received the Notice of Violation and Termination of Service. If you do not take action now, KUB will terminate your water service on \_\_\_\_\_.

If your water service is terminated, KUB recommends that you turn your water heater off at the breaker and take any other appropriate steps to ensure termination does not cause personal injury or property damage. KUB is not responsible for any damage caused by service termination.

### Instructions

- ☐ Find out if you are eligible for a free grant or no-interest loan: Call the Knoxville-Knox County Community Action Committee (CAC) immediately at 637-9073. Approval is based on income, which is adjusted for family size, medical expenses, etc. If you do qualify for aid, CAC will arrange for a plumber for you.
- ☐ Contact a plumber to schedule the needed work if you do not qualify for aid. For a list of plumbers, call 311 to access City services. You can also find the list on the City web site at [www.cityofknoxville.org](http://www.cityofknoxville.org) or on the KUB site at [www.kub.org](http://www.kub.org). Plumbers on the list are licensed and bonded, but their charges will vary. You may want to get several estimates.
- ☐ Give the plumber the description of the problem KUB provided in the first notice.
- ☐ Obtain a City plumbing permit only if you are making the repairs. If you use a plumber, he obtains the permit. Remember to call Tennessee One Call at 1-800-351-1111 72 hours before you dig.
- ☐ Contact the City Plumbing Inspector at 311 to arrange an inspection before the pipe is covered.

If you have any questions, please contact me immediately at 594-8270.

Sincerely,

A handwritten signature in cursive script that reads 'Leanne Pressley'.

Leanne Pressley  
Private Lateral Program Coordinator

CC: Roy Branch, Chief Plumbing Inspector, City of Knoxville

<sup>1</sup>This project [Grant Program] was undertaken [by KUB] in connection with the settlement of a civil enforcement action taken by the United States for violations of the Clean Water Act.

**Assistance for Spanish-speaking customers:** Los clientes de habla hispana que necesitan asistencia llamen a KUB al numero 524-2911 y oprima numero 8. Por favor informe a KUB que recibió una carta de FNST.

Repair completed letter to owner



## REPAIR COMPLETION NOTICE

Date of Notice: DATE

Name  
Address  
Address

Re: Notice of Noncompliance (NONC) dated \_\_\_\_\_

Our records show the required repairs to your private lateral have been inspected and approved. That concludes KUB's Private Lateral Program enforcement action taken under the original NONC listed above.

We appreciate your attention to the problem. By properly maintaining your lateral, you prevent tree roots or debris from entering sewers and causing blockages, building backups, or overflows in the environment. And fixing leaking pipes keeps wastewater from reaching ground water or being carried by stormwater to area waterways, which adds to stream pollution.

Thank you for your cooperation as we work to improve our sewers and help protect area waterways.

Sincerely,

A handwritten signature in cursive script that reads 'Leanne Pressley'.

Leanne Pressley  
Private Lateral Program Coordinator

C: Roy Branch, Chief Plumbing Inspector, City of Knoxville

**Assistance for Spanish-speaking customers:** Los clientes de habla hispana que necesitan asistencia llamen a KUB al numero 524-2911 y oprima numero 8. Por favor informe a KUB que recibió una carta de CMPL.

Repair completed letter to tenant



## REPAIR COMPLETION NOTICE

**Date of Notice: DATE**

Name  
Address  
Address

**Re: Notice of Noncompliance (NONC) dated** \_\_\_\_\_

Our records show that the owner has completed the required repairs to the private lateral at \_\_\_\_\_. You are receiving this notice because our records show you are a tenant at the property. That concludes KUB's Private Lateral Program enforcement action taken under the original NONC listed above.

Properly maintaining laterals, prevents tree roots or debris from entering sewers and causing blockages, building backups, or overflows in the environment. And fixing leaking pipes keeps wastewater from reaching ground water or being carried by stormwater to area waterways, which adds to stream pollution.

Thank you for your cooperation as we work to improve our sewers and help protect area waterways.

Sincerely,

A handwritten signature in cursive script that reads 'Leanne Pressley'.

Leanne Pressley  
Private Lateral Program Coordinator

**Assistance for Spanish-speaking customers:** Los clientes de habla hispana que necesitan asistencia llamen a KUB al numero 524-2911 y oprima numero 8. Por favor informe a KUB que recibió una carta de CMPL.



Cover letter to SEP Grant  
recipient, printed on KUB  
letterhead.

December 1, 2011

«First\_Name» «Last\_Name»  
«Address\_Line\_1»  
«City», «State» «ZIP\_Code»

Our records show the Knoxville-Knox County Community Action Committee (CAC) is managing required repairs to your private sewer lateral.

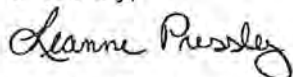
You are receiving this [Notice of Violation and Termination of Service (NOV) or Urgent Final Notice], however, as part of our standard enforcement process, KUB sends [a NOV or an Urgent Final Notice] to all customers who do not have completed repairs inspected and approved within [30 or 90] days of their first notice.

**Please Note: KUB is working with CAC to ensure repairs are made. You do not need to take action at this time. With your cooperation, CAC will take care of your lateral repairs on time.**

Maintaining laterals helps protect our environment by keeping wastewater out of ground water and area waterways. It also keeps out stormwater that overloads sewers and contributes to overflows.

Please call CAC if you have any questions at **637-9073**. Thank you for taking action to help protect our environment and the proper operation of our sewer system.

Sincerely,



Leanne Pressley  
Private Lateral Program Coordinator

Enclosure: **[Notice of Violation and Termination of Services or Urgent Final Notice]**

CC: Roy Branch, Chief Plumbing Inspector, City of Knoxville

**Assistance for Spanish-speaking customers:** Los clientes de habla hispana que necesitan asistencia llamen a KUB al numero 524-2911 y oprima numero 8. Por favor informe a KUB que recibió una carta de HCAC.

Cover letter to tenants, printed on  
KUB letterhead.

DATE

«AddressBlock»

Re: «Address\_Line\_1»

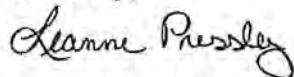
Attached is a notice KUB sent to the owner of the property above. You are receiving a copy of the notice because our records show you are a tenant at the property. The notice instructs the owner to make repairs to the property's private sewer lateral within 120 days of the first notice. If the owner does not make repairs, KUB will be forced by regulatory requirements to disconnect water service to the property.

**Please Note: You are not responsible for the repairs. You do not need to take action at this time. You may want to ask the property owner, however, if repairs will be made in time to prevent your water service from being cut off.**

Federal regulations require KUB to ensure that laterals connected to its system are properly maintained. Proper maintenance helps protect our environment by keeping wastewater out of groundwater and area waterways. It also keeps out stormwater that overloads sewers and contributes to overflows.

KUB will provide you a copy of any additional notices sent to the owner to keep you updated. If you have any questions in the meantime, please contact me at 594-8270.

Sincerely,



Leanne Pressley  
Private Lateral Program Coordinator

Enclosure: [Notice of Noncompliance (NONC), Notice of Violation and Termination of Service (NOV), or Urgent Final Notice]

CC: Roy Branch, Chief Plumbing Inspector, City of Knoxville

**Assistance for Spanish-speaking customers:** Los clientes de habla hispana que necesitan asistencia llamen a KUB al numero 524-2911 y oprima numero 8. Por favor informe a KUB que recibió una carta de TENT.

File closed letter



## ENFORCEMENT WITHDRAWAL NOTICE

Date of Notice: Month XX, 2009

Name  
Address  
Address

Re: Notice of Noncompliance (NONC) dated \_\_\_\_\_

After further review, the required repairs to your private lateral are no longer necessary. This concludes KUB's Private Lateral Program enforcement action taken under the original NONC listed above.

We appreciate your attention to the problem. By properly maintaining your lateral, you prevent tree roots or debris from entering sewers and causing blockages, building backups, or overflows in the environment. And fixing leaking pipes keeps wastewater from reaching ground water or being carried by stormwater to area waterways, which adds to stream pollution.

Thank you for your cooperation as we work to improve our sewers and help protect area waterways.

Sincerely,

A handwritten signature in cursive script that reads 'Leanne Pressley'.

Leanne Pressley  
Private Lateral Program Coordinator

CC: Roy Branch, Chief Plumbing Inspector, City of Knoxville

**Assistance for Spanish-speaking customers:** Los clientes de habla hispana que necesitan asistencia llamen a KUB al numero 524-2911 y oprima numero 8. Por favor informe a KUB que recibió una carta de CMPL.

Month Day, Year

Dear Homeowner:

KUB contract crews continue work in various areas to inspect, clean, and repair sewers under the PACE 10 sewer improvement program. As part of PACE 10, KUB also notifies customers who have private lateral problems or prohibited connections. KUB must ensure that customers make lateral repairs and remove prohibited connections, as required by a federal Consent Decree, KUB regulations, and City plumbing codes.

Private laterals are the pipes that connect customers' property to KUB's sewer. Prohibited connections include gutter downspouts, window wells, driveway drains, basement sump pumps, or other sources of rainwater.

Defective laterals can cause blockages, building backups, or overflows into the environment. Defects and prohibited connections also let stormwater into KUB sewers. The additional water costs more to treat, and it may overload the system, causing overflows.

Data indicates that laterals in your area may need to be repaired or replaced in the future. If future inspections find a lateral problem or prohibited connection on your property, you must correct the problem within 120 days. A federal mandate requires that KUB disconnect water service to homes that do not make repairs within that timeframe.

Under a KUB pilot program, **you may qualify for a free grant<sup>1</sup>** now to repair your private lateral or remove prohibited connections. This program is only available for a limited time.

Please call us at 594-8270 if you are interested in participating in this pilot program to use grant money to repair laterals and remove prohibited connections.

Sincerely,

Donna Morrell  
Private Lateral Program Coordinator

<sup>1</sup> This project [Grant Program] was undertaken [by KUB] in connection with the settlement of a civil enforcement action taken by the United States for violations of the Clean Water Act.



## Property Owners Must Remove Prohibited Connections

Dear Homeowner:

KUB is required under a Federal Consent Decree (CD) to notify customers to remove prohibited connections that direct rainwater to the sanitary sewer. Prohibited connections overload the sewer system with rainwater, contributing to overflows and adding to the cost of sewage treatment.

If you have a prohibited connection, you must disconnect it and route it away from the sanitary sewer system. This notification is mandated under the same CD that requires KUB to repair its defective sewer lines and inspect private sewer laterals (the pipes that connect customers' property to KUB's sewer system). KUB contractors have completed repairs and inspections in your area, and KUB has notified property owners who must make repairs to their private laterals.

**NOTE:** Your private lateral does not need repair at this time unless you receive a separate notification.

You have the opportunity now to apply for a **free grant<sup>1</sup> to remove any prohibited connections**. This program is available for a limited time. Prohibited connections include gutter downspouts, window wells, driveway drains, basement sump pumps, or other sources of rainwater.

If future inspections find prohibited connections on your property, KUB will notify you to remove them. The CD requires that KUB disconnect water service to homes that do not make repairs within 120 days of notification.

Follow the instructions below to remove any prohibited connections you may have to comply with City plumbing codes and KUB's rules and regulations.

### Instructions

- ☐ Find out if you are eligible for a free grant: Call the Knoxville-Knox County Community Action Committee (CAC) immediately at 637-9073. If you qualify for aid, CAC will arrange for a plumber for you.
- ☐ Contact a plumber to schedule the needed work if you do not qualify for aid. For a list of plumbers, call 311 to access City services. You can also find the list on the City Web site at [www.cityofknoxville.org](http://www.cityofknoxville.org) or on the KUB site at [www.kub.org/plumberslist](http://www.kub.org/plumberslist). Plumbers on the list are licensed and bonded, but their charges will vary. You may want to get several estimates.
- ☐ If you own and live in your home, you may choose to complete the work yourself. Contact the City Plumbing Inspectors office at 311 for a permit (no charge) and instructions to properly cap the pipe.
- ☐ Call the City Plumbing Inspector at 311, after the prohibited connection is removed, for an inspection before the pipe is covered.

Sincerely,

Donna Morrell  
Private Lateral Program Coordinator

<sup>1</sup>This project [Grant Program] was undertaken [by KUB] in connection with the settlement of a civil enforcement action taken by the United States for violation of the Clean Water Act.





NONC for Grant Approvals  
from 2008 Special Offers.

## SEWER LATERAL REPAIR NOTICE

Date of Notice: March 14, 2008

«FirstName» «LastName»  
«Address1»  
«City», «State» «PostalCode»

Re: «PropertyAddress»

Thank you for responding to our letter concerning KUB's pilot program to repair sewer laterals and remove prohibited connections. Knoxville-Knox County Community Action Committee (CAC) has processed your financial aid application and you should receive an acceptance letter in the next few days from CAC to set up a meeting.

You are receiving this letter as part of our standard Private Lateral Program notification process. CAC will arrange for repairs, removal of prohibited connections, and have the work inspected and approved by the City Plumbing Inspector within 120 days of the date of this notice. **If repairs are not made and inspected by the City within the 120-day timeframe, KUB must withdraw the offer of financial assistance.**

As mentioned in the previous letter, this financial aid program is only available for a limited time. Under a Federal Consent Decree, KUB must repair its defective sewer lines and inspect private sewer laterals (the pipes that connect customers' property to KUB's sewer system). KUB must ensure customers make lateral repairs and remove prohibited connections, as required by the decree, KUB regulations, and City plumbing codes. If this assistance offer is withdrawn because you did not work with CAC to complete repairs in the 120-day time frame and future inspections find defective sewer laterals or prohibited connections on your property, KUB will require you to make the necessary repairs. If KUB discovers a problem with your lateral, the CD requires that we disconnect water service to homes that do not make repairs within 120 days of notification.

**Please Note: By participating in this program you agree to work with CAC to ensure repairs are made before the 120-day deadline. If you have questions concerning the repair process, please call me at 594-8270 or CAC at 637-9073.**

Maintaining laterals helps protect our environment by keeping wastewater out of groundwater and area waterways. It also keeps out stormwater that overloads sewers and contributes to overflows.

Thank you for taking action to help protect our environment and the proper operation of our sewer system.

Sincerely,

Donna Morrell  
Private Lateral Program Coordinator

CC: Roy Branch, Chief Plumbing Inspector, City of Knoxville

<sup>1</sup> This project [Grant Program] was undertaken [by KUB] in connection with the settlement of a civil enforcement action taken by the United States for violations of the Clean Water Act.

**Assistance for Spanish-speaking customers:** Los clientes de habla hispana que necesitan asistencia llamen a KUB al numero 524-2911 y oprima numero 8. Por favor informe a KUB que recibió una carta de HCAC.

**NONC Cover letter for Grant Approvals  
from 2010 Special Offers.  
Printed on KUB letterhead.**

June 24, 2011

«FirstName» «LastName»  
«Address1»  
«City», «State» «PostalCode»

RE: KUB Private Sewer Lateral Incentive Program; «PropertyAddress»

Our records show the Knoxville-Knox County Community Action Committee (CAC) is managing replacement of your private sewer lateral.


You are receiving this Notice of Noncompliance (NONC), however, as part of our standard enforcement process. KUB sends an NONC to all customers who are in the Private Lateral Program. Customers must be in the Private Lateral Program to receive grant funding. Since you have voluntarily entered the Private Lateral Program, you may opt out at any time before you sign the contract with CAC.

**Please Note: KUB is working with CAC to ensure repairs are made. You do not need to take action at this time. With your cooperation, CAC will take care of your sewer lateral repairs within 120 days of this notice. Your water service is not in danger of being disconnected as long as you comply with CAC's process.**

Maintaining your lateral helps protect our environment by keeping wastewater out of ground water and area waterways. It also keeps out stormwater that overloads sewers and contributes to overflows. The enclosed brochure provides information helpful to you in ensuring your sewer lateral stays in good operating condition.

Please call CAC at **637-9073** if you have any questions. Thank you for taking action to help protect our environment and the proper operation of our sewer system.

Sincerely,



Donna Morrell Maloy  
Private Lateral Program Coordinator

Enclosure: Notice of Noncompliance (NONC)  
Description of Lateral Defect  
Understanding Your Sewer Lateral Brochure

CC: Roy Branch, Chief Plumbing Inspector, City of Knoxville

**Assistance for Spanish-speaking customers:** Los clientes de habla hispana que necesitan asistencia llamen a KUB al numero 524-2911 y oprima numero 8. Por favor informe a KUB que recibió una carta de HCAC.



Knoxville Utilities Board

Assistance Offer used 3/19/10-10/15/10.

Month Day, Year

Dear Customer:

Do you own and live in the home at the address on this letter? If so, you may qualify for a free grant from KUB to repair your private lateral or remove prohibited connections.

Private laterals are the pipes that connect customers' properties to KUB's sewer. Prohibited connections include gutter downspouts, window wells, driveway drains, basement sump pumps, or other sources of rainwater.

Defective laterals can cause blockages, overflows into the environment, or backups into your home. Defects and prohibited connections also let stormwater into KUB sewers. The additional water costs more to treat, and it may overload the system, causing overflows.

KUB continues work in various areas to inspect, clean, and repair sewers under the PACE 10 sewer improvement program. Data collected during an assessment of your area indicates that your private lateral may need to be repaired or replaced to prevent messy backups or overflows.

Act now to help prevent future problems and protect your property and our environment. Call the Knoxville-Knox County Community Action Committee (CAC) at 637-9073 to find out if you are eligible for the free grant money.

Sincerely,

Donna Morrell Maloy  
Private Lateral Program Coordinator

<sup>1</sup>*This project [Grant Program] was undertaken [by KUB] in connection with the settlement of a civil enforcement action taken by the United States for violations of the Clean Water Act.*



Knoxville Utilities Board

Assistance Offer used 10/22/10-11/19/10.

October 22, 2010

«FirstName» «LastName»  
«StreetNumber» «Street»  
«City», «State» «Zip»

Dear KUB Customer:

Do you own and live in the home at the address on this letter? If so, you may qualify for a free grant from KUB to repair your private lateral or remove prohibited connections.\*

Private laterals are the pipes that connect customers' properties to KUB's sewer. Prohibited connections include gutter downspouts, window wells, driveway drains, basement sump pumps, or other sources of rainwater.

Defective laterals can cause blockages, overflows into the environment, or backups into your home. Defects and prohibited connections also let stormwater into KUB sewers. The additional water costs more to treat, and it may overload the system, causing overflows.

KUB continues work in various areas to inspect, clean, and repair sewers under the PACE 10 sewer improvement program. Data collected during an assessment of your area indicates that your private lateral may need to be repaired or replaced to prevent messy backups or overflows.

Acting now to participate in this voluntary program may help prevent future problems and protect your property and our environment. Call the Knoxville-Knox County Community Action Committee (CAC) at 637-9073 to find out if you are eligible for the free grant money.

Sincerely,

Donna Morrell Maloy  
Private Lateral Program Coordinator

\* This offer is strictly voluntary, and you are not required to participate. If you want, or think you may need, a new sewer lateral, call CAC at the phone number listed above for more information.

<sup>1</sup> This project [Grant Program] was undertaken [by KUB] in connection with the settlement of a civil enforcement action taken by the United States for violations of the Clean Water Act.



**Mandatory Private Lateral Program Alerts  
Homeowners to Repair Their Sewer Laterals  
*Grants and Financing Options Available***

KUB wastewater customers who own their homes will play an important part in helping protect our environment under KUB's new Private Lateral Program (PLP), starting this summer.

If you own your home, you also own your lateral: the pipe that connects your property to KUB's sewer system. Under KUB regulations and area plumbing codes, you are responsible for maintaining your lateral, just as you are other pipes in your home.

**As required by federal regulatory mandates:**

- KUB must repair its sewer lines to stop sewer overflows and help area waterways improve to meet Clean Water Act requirements.
- KUB must inspect customers' private laterals.
- KUB must ensure owners make lateral repairs or remove prohibited stormwater connections.
- KUB must terminate the water service of customers who do not make repairs.

Prohibited connections include roof downspouts, driveway drains, or other stormwater drains to the sewer. Those connections can overload sewers with rainwater and contribute to overflows.

Broken customer laterals can allow tree roots or debris into the pipe, which may cause blockages, building backups, or overflows in the environment. And wastewater from leaking laterals adds to waterway pollution.

***Lateral Repair Notification Process***

As PACE 10 wastewater system improvement program inspections identify lateral problems, KUB sends letters notifying homeowners that they have 120 days to make repairs to avoid water service termination. The letters also include information about the defective lateral, the process to follow, and funding available through the PACE 10 Residential Assistance Program [see back].

(Continued)

Many factors affect the cost of replacing a lateral (such as its length, whether it's under a driveway, etc.). An average replacement could cost about \$1600.

KUB will follow up with the customer several times during the 120 days until the completed work is inspected and approved.

#### **PACE 10 Residential Assistance Program**

KUB wastewater customers may be eligible for help to pay for home lateral repairs under these programs:

- **Grant Program<sup>1</sup>:** This \$2 million program helps low-income homeowners repair or replace sewer laterals and remove prohibited connections that let stormwater into KUB's system.

The Knoxville-Knox County Community Action Committee (CAC) administers the program. It takes applications, qualifies applicants, schedules plumbers, and pays repair or replacement costs from the fund. The income guideline for grants is 50 percent of median income, or \$23,400 for a family of three.

- **KUB Loan Program:** KUB is voluntarily matching the mandatory funding with a \$2 million loan program to help customers who do not meet grant guidelines. The CAC also manages this program. The income guideline is 60 percent of median income, or \$28,080 for a family of three.
- **Financial Institutions:** Customers who do not qualify for the KUB programs above will be referred to area lenders.

**For more information on the requirements for the grant or KUB loan programs, contact the CAC at 637-6700.**

<sup>1</sup>*This project [Grant Program] was undertaken in connection with the settlement of a civil enforcement action taken by the United States for violations of the Clean Water Act.*



# Need Money to Fix Your Home's Sewer Lateral?

If you are a homeowner who got a notice from KUB about fixing your sewer lateral, you may qualify for financial aid.

Contact CAC to find out if you are eligible for a grant [no pay back required] or a no-interest loan for the required lateral work.

CAC bases approval for aid on income, but not income alone. CAC adjusts for family size, medical expenses, and other qualifying factors.

Please call us at 637-9073. Help may be just a phone call away.

## Manholes stop more serious problem.

Since overflows come out of manholes, you might think KUB could seal manholes to stop the problem. Unfortunately, that would create a much worse problem. If excess water couldn't escape through manholes, the pressure would force wastewater to back up into homes through drains.

## Treatment plants help protect area

**waterways.** KUB's four treatment plants play an important role in protecting our environment. They use screening and settling to remove debris, "bugs" to break down solid waste, and chlorine as a disinfectant. Wastewater KUB discharges is cleaner than the river itself.

## Protect your property and our environment with these tips:

- Maintain/repair your sewer lateral to meet KUB regulations and area plumbing codes.
- Clear any roots or blockages in the lateral all the way to the connection with the sewer main.
- Know where your cleanout is for quick access to clear blockages or stop backups.
- Install a two-way cleanout at your property line, if you don't already have one.
- Keep your cleanout cap on and in good shape. It keeps out rain and debris that can cause blockages, backups, or overflows.



## PAGE 10 Residential Assistance

### Program Helps Pay for Lateral Repairs

You may be eligible for help to pay for home lateral repairs under one of these programs:

**Grant Program\*:** The \$2 million dollar KUB-funded program is run by the Knoxville-Knox County Community Action Committee. CAC takes applications, schedules plumbers, and pays repair costs. An example of qualifying income is \$23,750 for a family of three, with adjustments for other family sizes.

**KUB Loan Program:** KUB voluntarily funds a \$2 million, no-interest loan program also run by the CAC. An example of qualifying income is \$28,500 for a family of three, with adjustments for other family sizes.

**Financial Institutions:** Customers who do not qualify for the KUB programs above will be referred to area lenders.

*If you believe you may qualify for a grant or loan to repair your lateral, please call CAC at 637-9073.*

\*This project [Grant Program] was undertaken [by KUB] in connection with the settlement of a civil enforcement action taken by the United States for violations of the Clean Water Act.

# KUB

## pace10

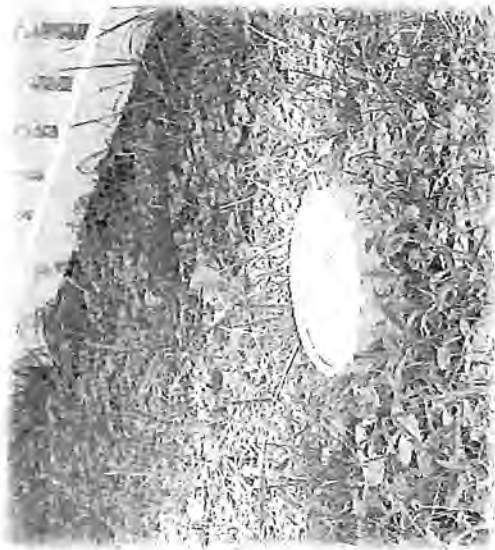
Partners Acting for a Cleaner Environment  
A 10-year Program to Improve Our Waterways

P.O. Box 59017  
Knoxville, TN 37950-9017  
865-524-2911

[www.kub.org](http://www.kub.org), or [pace10@kub.org](mailto:pace10@kub.org)

# Understanding Your Sewer Lateral

- **Maintain your private sewer lateral**
- **Funding options for mandatory lateral repairs**



*Properly maintained sewer lateral cleanout caps keep out debris that can lead to blockages.*

# KUB

## pace10

Partners Acting for a Cleaner Environment  
A 10-year Program to Improve Our Waterways

# *Your sewer lateral is your property – maintain it to protect your home and our environment.*

# KUB

If you own your home, you also own your sewer lateral: the pipe that connects your property to KUB's sewer system. Under KUB regulations and area plumbing codes, you are responsible for maintaining your lateral, just as you are any other pipe in your home.

KUB owns and maintains the wastewater system that transports wastewater to treatment plants. The City of Knoxville, or Knox County, manages the stormwater system to control rainfall runoff. KUB notifies customers when inspections find that laterals need repair. KUB also tells customers about prohibited connections, like roof downspouts, that direct stormwater or groundwater to the KUB sewer system.

**Defective laterals are bad for the environment.** Broken laterals can allow tree roots or debris into the pipe, which may cause blockages, building backups, or overflows in the environment. And leaking pipes allow wastewater to reach ground water or area waterways, which adds to water pollution.

**Keep stormwater from overloading sewers.** Defects and prohibited connections also let stormwater into KUB sewers. That extra water costs more to treat, and it may overload the system, causing overflows. Prohibited connections include roof downspouts, groundwater sump pumps, foundation drains, and drains from window wells, driveways, etc.

Direct stormwater to storm sewers or drainage ditches, or let it soak into the ground.

**Cleanouts protect your property and our environment.** Many homes, like the one in the diagram at right, have lateral cleanouts. A cleanout is a vertical pipe that extends from an underground lateral to the surface and has a removable cap for maintenance access.

Keep the cleanout cap on and in good shape to stop debris from getting in and causing a backup in your home. The cap also helps keep out water that contributes to sewer overflows.

Know where your sewer cleanout is in case you, or your plumber, need quick access to clear a blockage and stop messy, costly sewage backups into your home. Remember: Clear blockages up to the sewer main, even if it is under the street. That will help you avoid future problems and the possible inconvenience and expense of another plumber's visit.

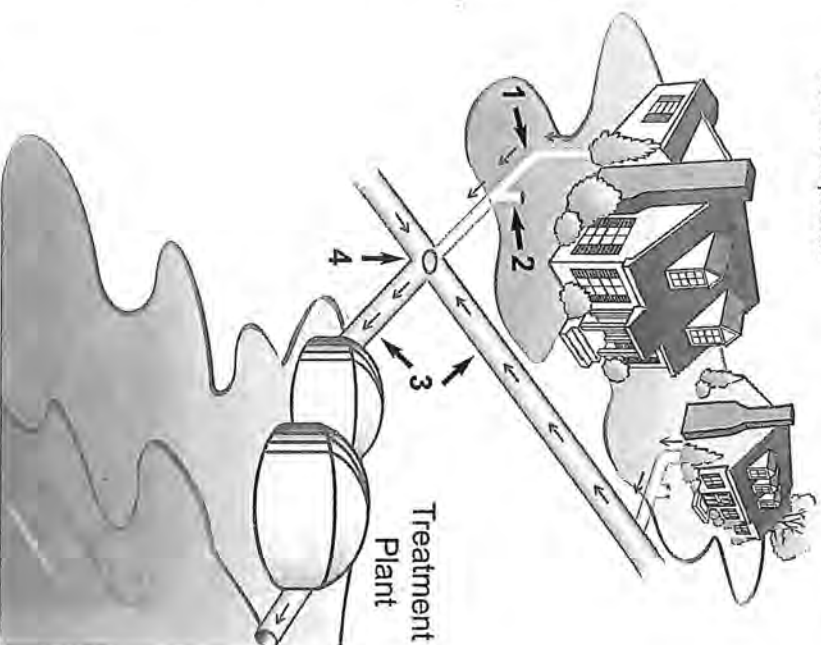
Under City Plumbing Codes and KUB regulations, new homes or new lateral installations must have a cleanout at the property line. KUB recommends a two-way cleanout for easier access both toward your home and toward the main sewer line.

If your home doesn't have a cleanout, you may want to add one. KUB can help clear blockages under the street between your cleanout and the sewer main if you have a cleanout at your property line.

## **Why can't I connect my home's downspout to my lateral?**

When it rains, the extra water from your home's roof is like adding 33 homes to the sewer. The sewer wasn't designed to handle that extra water, which can flood the pipes and cause overflows.

**Wastewater Collection System Flow Diagram**  
Water used in homes and businesses flows from customer-owned laterals to KUB sewer mains and treatment plants.



### **Legend**

- 1 → Lateral
- 2 → Cleanout
- 3 → Trunk (main sewer line)
- 4 → Manhole



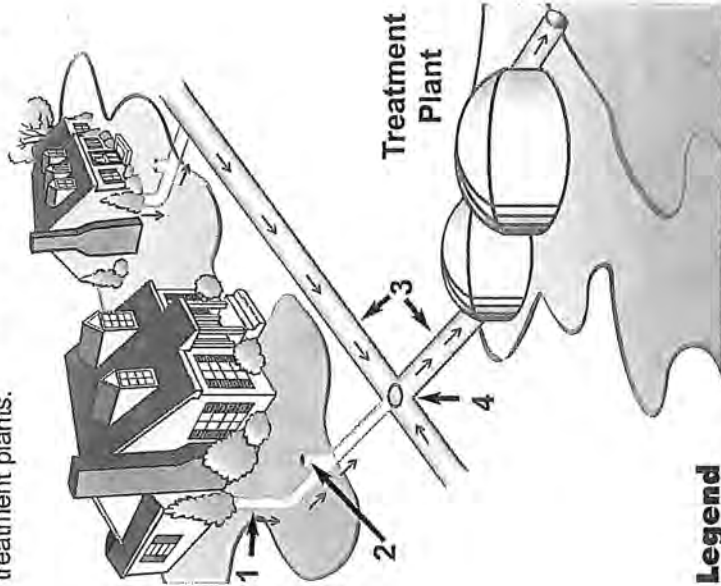
## Cleanouts Protect Your Property and Our Environment

Many homes, like the one in the diagram below, have lateral cleanouts. A cleanout is a vertical pipe from an underground lateral to the surface and has a removable cap for maintenance access.

Keep the cleanout cap on and in good shape to stop debris from getting in and causing a backup in your home. The cap also helps keep out water that contributes to sewer overflows.

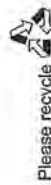
## Wastewater Flow Diagram

Water used in homes and businesses flows from customer-owned laterals to KUB sewer mains and treatment plants.



### Legend

- 1 → Lateral
- 2 → Cleanout
- 3 → Trunk (main sewer line)
- 4 → Manhole



## Find Cleanout for Emergency Access

Know where your sewer cleanout is in case you, or your plumber, need quick access to stop messy, costly sewage backups into your home. Remember: Clear blockages up to the sewer main, even if it is under the street. That will help you avoid future problems and the possible inconvenience and expense of another plumber's visit.

Under City Plumbing Codes and KUB regulations, new laterals must have a cleanout at the property line. KUB recommends a two-way cleanout for easier access toward your home and the main sewer.

If your home doesn't have a cleanout, you may want to add one at your property line. With a cleanout at the property line, KUB can help clear blockages under the street to our sewer main.

## Protect Your Property and Our Environment With These Tips

- Maintain/repair your sewer lateral to meet KUB regulations and area plumbing codes.
- Remove any prohibited stormwater connections.
- Clear any roots or blockages in the lateral all the way to the connection with the sewer main.
- Know where your cleanout is for quick access to clear blockages or stop backups.
- Install a two-way cleanout at your property line, if you don't already have one.
- Keep your cleanout cap on and in good shape. It keeps out rain and debris that can cause blockages, backups, or overflows.

**KUB**

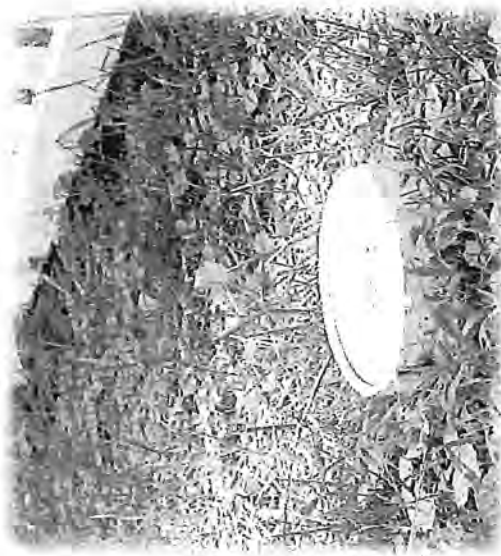
**pace10**  
Partners Acting for a Cleaner Environment  
A 10-year program to improve our waterways

P.O. Box 59017  
Knoxville, TN 37950-9017  
865-524-2911 • [www.kub.org](http://www.kub.org)

Y7M1

# Understanding Your Sewer Lateral

- *Helping protect your home and our environment*
- *Funding options for mandatory lateral repairs*



*Properly maintained sewer lateral cleanout caps keep out debris that can lead to blockages.*

**KUB**

**pace10**  
Partners Acting for a Cleaner Environment  
A 10-year program to improve our waterways

# *Your sewer lateral is your property – and maintaining it helps protect your home and our environment.*

# KUB

**I**f you own your home, you also own your sewer lateral: the pipe that connects your property to KUB's sewer system. [See *diagram on back*.] Under KUB regulations and area plumbing codes, you are responsible for maintaining your lateral, just like other pipes in your home.

We want you to understand why it is important to maintain your lateral to protect your property and our environment. We also know the expense of an unexpected repair can be a hardship.

In addition to information on laterals, this brochure describes KUB's private lateral inspection program and possible financial aid to help low-income homeowners repair laterals.

## **Federally Mandated**

### **Private Lateral Program (PLP)**

Maintaining laterals helps protect waterways by keeping out stormwater that can overload sewers and contribute to overflows.

KUB owns and maintains the wastewater system that transports wastewater to treatment plants. The City of Knoxville, or Knox County, manages the stormwater system to control rainfall runoff. Under the PLP, federal regulators require KUB to take the following steps:

- Inspect private laterals and identify defects or prohibited connections, like roof downspouts, that direct stormwater to the wastewater system
- Inform property owners of any defects, the process to follow, and potential availability of financial aid
- Ensure owner corrects the problem in 120 days
- Terminate water service to the property if the problem isn't corrected in 120 days.

## **PLP Notification and Enforcement**

As PACE 10 wastewater system inspections find lateral problems, KUB notifies the property owner.

**Initial Contact:** First Notice of Noncompliance includes a description of the defect, what to do, and information on possible financial assistance.

**30 Days:** First Notice of Violation and

Termination of Service goes to all owners who do not complete work within 30 days. Gives owners 14 days to appeal to KUB. For owners working through the repair process, this notice is simply a reminder of the 120-day deadline to avoid water service termination at the property.

**90 Days:** Termination Notice states water service will be shut off at 120 days if work isn't finished.

**110 Days:** A doorhanger advises water service will be shut off in 10 days if lateral not repaired.

**119 Days:** KUB attempts final contact before shutting off water service.

**120 Days:** KUB turns off water service.

## **Financial Assistance Information**

KUB funds a required grant\* program and a voluntary no-interest loan program to help low-income homeowners make lateral repairs.

For grant or loan applications, please call the Knoxville-Knox County Community Action Committee (CAC), 637-9073.

*Please Note:* Approval is based on income, but not income alone. CAC adjusts for family size, medical expenses, and other qualifying factors.

\*This project [Grant Program] was undertaken [by KUB] in conjunction with the settlement of a civil enforcement action taken by the United States for violations of the Clean Water Act.



## **Defective Laterals Are Bad for The Environment**

Broken laterals can allow tree roots or debris into the pipe, which may cause blockages, building backups, or overflows in the environment. And leaking pipes allow wastewater to reach groundwater or area waterways, which adds to water pollution.

## **Keep Stormwater From Overloading Sewers**

Defects and prohibited connections also let stormwater into KUB sewers. That extra water costs more to treat, and it may overload the system, causing overflows. Prohibited connections include roof downspouts, groundwater sump pumps, foundation drains, and drains from window wells, driveways, etc.

Direct stormwater to storm sewers or drainage ditches, or let it soak into the ground.

## **Remove Prohibited Connections**

KUB and City plumbing inspectors won't approve repairs if the lateral has prohibited connections. Prohibited connections are anything that directs stormwater to the sewer.

## **KUB PACE 10 Residential Assistance Program Helps Pay for Lateral Repairs**

You may be eligible for help to pay for home lateral repairs under one of these programs:

**Grant Program\*:** The \$2 million dollar KUB-funded grant program is run by the Knoxville-Knox County Community Action Committee. The CAC takes applications, schedules plumbers, and pays repair costs.

**KUB Loan Program:** KUB voluntarily funds a \$2 million, no-interest loan program also run by the CAC.

Approval is based on income, but not income alone. The CAC adjusts for family size, medical expenses, and other qualifying factors.

*To see if you qualify for a grant or loan to repair your lateral, please call the CAC at 637-9073.*

**Financial Institutions:** Customers who do not qualify for the KUB programs above may want to contact area lenders for assistance.



*\*This project [Grant Program] was undertaken [by KUB] in connection with the settlement of a civil enforcement action taken by the United States for violations of the Clean Water Act.*

P10RAPY7M1





## **You may qualify for free grant money! Meet with us to find out more.**

**Private Lateral Program/  
Grant Meetings  
O'Connor Senior Center  
611 Winona Street  
March 11 and 17, 2008  
1:30 p.m. and 4:30 p.m.**



Following KUB sewer work in your area, homeowners may need to repair their private laterals (the underground pipes that connect homes to KUB's sewers).

If you own your home, you may qualify for a free grant\* for lateral repairs. Please plan to attend a meeting to find out more.

The CAC administers the grants, which KUB funds. For more information, please call the CAC at 637-9073.

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**KUB**

P.O. Box 59017  
Knoxville, TN 37950-9017





### What Is PACE 10?

"PACE" stands for *Partners Acting for a Cleaner Environment*. "10" is for the accelerated 10-year wastewater system improvement program to eliminate chronic sewer overflows.

The name also stresses that "partners" are important. Early partners were KUB staff, consultants, and elected officials.

Ultimately, KUB wants everyone in our community – residents, businesses, and environmental groups – to be our partner. Sewer overflows are only part of the problem our waterways face, and eliminating overflows is only part of the solution. We must all work together for cleaner waterways.

*For more on PACE 10 and how you can help protect our waterways, visit [www.kub.org](http://www.kub.org).*

### Key PACE 10 Information

- Wastewater issues are a growing concern in our area and nationwide. From acquiring the wastewater system in 1987 to 2004, KUB invested over \$140 million, spreading upgrades out over time to help hold rates down.
- State regulators stepped in here, as they have other places, and gave KUB a deadline for improvements.
- KUB launched the \$530 million PACE 10 program in October 2004 to pick up the pace of wastewater system improvements to help clean up area waterways to meet Clean Water Act requirements. Substantial modifications required to two of KUB's wastewater treatment plants will increase total spending to nearly \$600 million by June 30, 2021.
- A Federal Consent Decree, signed in February 2005, settled outstanding sewer overflow issues with local, state, and federal agencies and environmentalists. It also required enhanced or new programs.
- PACE 10 has a significant impact on the wastewater system, the environment, and the local economy.
- KUB went from spending \$1 million a month on improvements before PACE 10 to an average of \$1 million a week.
- Customers saw 50 percent wastewater rate increases to fund improvements in April 2005 and January 2007. Smaller increases are anticipated later.
- The three main components of PACE 10 are rehabilitation, replacement, and wet-weather wastewater storage.
- PACE 10 communications: KUB sends letters to customers explaining upcoming work in their areas, road closures, etc. Crews also use doorhangers for more immediate communication during projects. And a Partners Council of community representatives provides input and feedback to KUB on PACE 10.
- PACE 10 continues to complete projects that show results in decreasing overflows.

### PACE 10 Productive in 2008

- 55 miles of sewer lines cleaned/televised under PACE 10
- 312 miles cleaned/TVed under Blockage Abatement (BA)
- [BA steps up cleaning in problem areas to reduce overflows until projects can fix the problem. KUB removed 21 percent of lines on BA in 2006, thanks to PACE 10 projects.]
- 20 miles of lines replaced, upgraded, or lined
- 1681 grease inspections at sites that process/prepare food
- 50-plus percent drop in total overflows from pre-PACE 10 high in 2003
- \$47 million in projects under contract



Wastewater Storage Tank at Walker Springs.

**Continued**



### Protect your home, our environment

- ❑ Maintain/repair your lateral to meet KUB regulations and area plumbing codes.
- ❑ Remove any prohibited stormwater connections, like roof downspouts, sump pumps, or drains that direct stormwater to the sewer.
- ❑ Know where your cleanout is for quick access to clear blockages or stop backups. [A cleanout has a removable cap at the surface for maintenance access.]
- ❑ Install a two-way cleanout at your property line, if you don't already have one.
- ❑ Keep your cleanout cap on and in good shape. It keeps out rain and debris that cause building backups or overflows.

### Private Lateral Program

Under the Federal Consent Decree (CD), KUB must operate a Private Lateral Program to reduce extraneous water entering the system. KUB must also fund a \$2 million grant\* program to help low-income customers make required lateral repairs.

- In August 2005, KUB began notifying homeowners with private laterals that need repair. [A lateral is the customer-owned pipe that connects to KUB's sewer.]
- As required under the CD, KUB
  - Inspects private laterals and identifies defects or prohibited connections, like roof downspouts, sump pumps, or other stormwater sources [See below.]
  - Informs property owners of any defects, the process to follow, and the potential availability of financial aid
  - Ensures the property owner corrects the problem
  - Terminates water service to the property if the problem isn't corrected in 120 days.
- KUB contracted with the Knoxville-Knox County Community Action Committee (CAC) to administer the required \$2 million grant program and a voluntary \$2 million no-interest loan program. KUB voluntarily funded the loan program to help more low-income customers repair their private laterals. [See box below for more aid information.]

*\* This project [Grant Program] was undertaken [by KUB] in connection with the settlement of a civil enforcement action taken by the United States for violations of the Clean Water Act.*

### Help May Be Just a Phone Call Away: Financial Aid for Sewer Lateral Work

Low-income homeowners who get a notice from KUB about fixing their laterals may qualify for aid. [Laterals are the pipes that connect properties to KUB sewers.]

KUB funds a required \$2 million grant\* program [see above] and a voluntary \$2 million no-interest loan program to help with lateral repairs.

The Knoxville-Knox County CAC administers both assistance programs.

Approval is based on income, but not income alone. CAC adjusts for family size, medical expenses, and other factors.

CAC takes aid applications, schedules plumbers, and pays repair costs from the funds.

KUB and CAC sometimes talk to homeowners who would have qualified for aid, but didn't apply for some reason. To encourage more applications, CAC now calls the homeowners notified by KUB, and it sends them reminder postcards.

**If you get a lateral notice, please call 637-9073 to see if you qualify. Help may be just a phone call away.**



### Remove Prohibited Connections

KUB and City/County plumbing inspectors won't approve lateral repairs if they find prohibited connections.

Prohibited connections are anything that directs stormwater to KUB sewers. They include roof downspouts [above], ground-water sump pumps, and drains from foundations, driveways, window wells, etc.

Stormwater may overload sewers and cause overflows. It also costs more to treat the extra water, which drives up bills. Direct stormwater to storm sewers or drainage ditches, or let it soak into the ground.

# IMPORTANT: Call CAC Today!

You may qualify for money for sewer lateral work.



Did you see the letter KUB sent recently about free grant money to help fix your sewer lateral?

An assessment of your area shows your sewer lateral may need to be replaced to prevent backups or overflows. And you may qualify for a free grant to complete this work.

CAC bases grant approval on current income, not existing assets, like homes, etc. CAC also adjusts income downward based on family size, medical expenses, and other qualifying factors.

Please call us at 637-9073. Help may be just a phone call away.

## CAC

"Community Action: Helping People. Changing Lives."  
Knoxville-Knox County Community Action Committee

CAC

"Community Action. Helping People. Changing Lives."  
Knoxville-Knox County Community Action Council

P.O. Box 51650  
Knoxville, TN 37950-1650



## KUB Inspecting Private Sewer Laterals

A KUB contractor will start inspecting private sewer laterals in your neighborhood in the next few weeks.

**You do not need to take any action on your sewer lateral unless you receive a certified mail packet from KUB about needed repairs.** If you are currently experiencing wastewater problems, however, please call the Private Lateral Program at 594-8270.

The lateral packets contain information on required repairs and financial assistance. If you own and live in your home, for example, you may qualify for a free grant\* to repair your sewer lateral. Grant approval is based on your income, after adjustments for family size, medical expenses, and other qualifying factors.

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***For more information,  
call 594-8270.***



POSTAGE GOES HERE