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Bacterial Source Tracking in the Sinking Creek Watershed Using Antibiotic Resistance Analysis and Ribotyping.

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Bacterial Source Tracking in the Sinking Creek Watershed Using Antibiotic Resistance Analysis and Ribotyping

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by

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ABSTRACT

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Fecal pollution of surface water is a significant environmental health issue. Indicator organisms are used to monitor microbial water quality, but often their presence does not coincide with the presence of pathogens. Bacterial source tracking is a term describing methods to determine the origin of fecal pollution based on bacterial traits. The objective of this research is to evaluate the use of 2 bacterial source tracking techniques, antibiotic resistance analysis (ARA) and ribotyping, to determine the sources of bacteria isolated from Sinking Creek. Based on the results of this study, ARA and ribotyping are not useful techniques for identifying sources of fecal pollution in Sinking Creek. ARA classification rates were low, and ribotype pattern generation success was 37%. The results of this study bring into question the reliability and reproducibility of these 2 source tracking methods for routine use in small watersheds.

DEDICATION

My thesis is dedicated to Lee, who continually encouraged me to challenge myself. You always were and will continue to be my inspiration.

ACKNOWLEDGMENTS

To all of my committee members, Dr. Philip Scheuerman, Dr. Ranjan Chakraborty, and Dr. Kurt Maier, I would like to extend a huge thank you for your advice and guidance throughout this process. I would also like to thank Brian Evanshen for all his help during my time in the program. To our executive aide, Charles Patton, thank you for always taking time out to help. Thanks also to all of the graduate students in the Department of Environmental Health for their advice, support, and friendship. Finally, I would like to thank my family and friends who have supported me throughout my life, including graduate school. I would never have been able to finish without your encouragement.

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CHAPTER 1

INTRODUCTION

Sinking Creek, a tributary of the Watauga River, is located in Washington and Carter Counties, Tennessee (Figure 1). This creek was added to Tennessee's 303(d) list in 1998 due to the presence of fecal coliform bacteria above action levels. Nonpoint sources of fecal pollution are thought to be the main factor affecting the water quality of Sinking Creek (TDEC 2000). A Total Maximum Daily Load (TMDL) has been established for Sinking Creek, but the levels of bacteria are consistently over the designated value of 1.212×10^{12} counts per 30 days (TDEC 2000). Although the bacteria being introduced are not from a known source, determining sources of input could allow more appropriate and cost-effective remediation efforts to be developed.

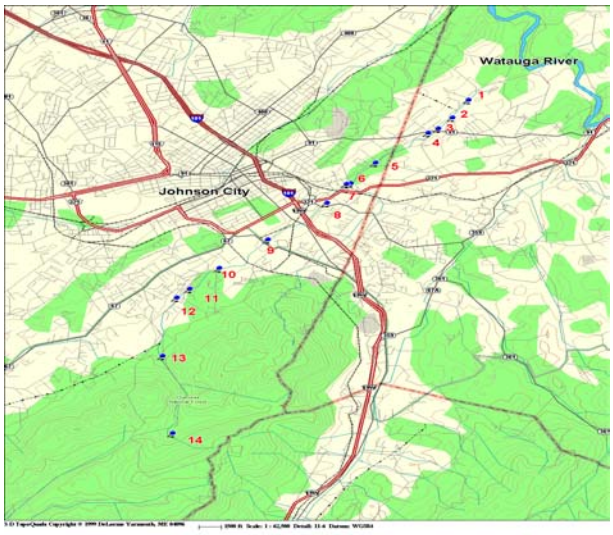


Figure 1 Location of Sinking Creek and Designated Sampling Sites (adapted from Dulaney, 2003)

Bacterial source tracking (BST) describes methods that use bacteria as target organisms to identify sources of fecal pollution. These methods aim to determine the source of bacteria isolated from the environment based upon different characteristics such as antibiotic resistance. Many of these methods, including antibiotic resistance analysis and ribotyping, have been used successfully to determine sources of bacteria isolated from the environment (Wiggins 1996, Parveen et al. 1997, Carson et al. 2001, Scott et al. 2003). Antibiotic resistance analysis (ARA) discriminates between sources based on patterns of resistance to multiple antibiotics at different concentrations. Ribotyping analyzes the ribosomal RNA, which is highly conserved in bacteria.

The objective of this research is to evaluate the use of 2 bacterial source tracking techniques (ARA and ribotyping) to determine the sources of bacteria isolated from Sinking Creek. In order to meet this objective, several major steps must be achieved. First, a known source library of fecal streptococci (ARA) and *Escherichia coli* (ribotyping) are collected and processed. Then, a collection of unknown isolates are processed and compared to the known isolate library for identification.

The results of this research may help the Sinking Creek Watershed Alliance, Tennessee Department of Environment and Conservation (TDEC), Tennessee Department of Agriculture, and other groups involved in the prevention and remediation of fecal contamination in Sinking Creek by identifying sources of nonpoint pollution. By identifying which source(s) are contributing to the pollution of Sinking Creek, a better understanding of what needs to be done to remediate Sinking Creek can be achieved. Best management practices (BMPs), total maximum daily loads (TMDLs), and other

remediation efforts may be evaluated and altered if necessary based on what sources are causing the problem.

There are limitations of using bacterial traits that may affect this study. Bacteria are very adaptable organisms, so there is much variability to account for. Antibiotic resistance is a trait that may be present in bacteria but not expressed phenotypically. If resistance is not expressed, we cannot discriminate between bacteria that contain the resistance genes from those that are not resistant to the specific antibiotic. It is also unclear how long conserved regions of DNA will remain conserved if they are not used. This would limit the ability to distinguish between some isolates, possibly causing lower rates of correct classification to occur. There are definite pitfalls to using these methods and these limitations must be acknowledged.

Sinking Creek is impacted by nonpoint sources of fecal pollution. Fecal pollution can have serious human health implications if left unchecked. By determining the sources of fecal pollution and their relative negative impact on water quality, a remediation strategy can be developed to improve water quality in Sinking Creek.

CHAPTER 2

LITERATURE REVIEW

Background on Fecal Pollution and Implications

Fecal pollution of surface and groundwater is a global problem. Fecal pollution can enter surface waters from point and nonpoint sources. Point sources are known areas of fecal input, like confined animal feeding operations (CAFOs) or wastewater treatment plants (WWTPs). Nonpoint sources can include leaking septic tanks, small-scale animal waste, wildlife waste, and urban runoff. Many other factors, such as inadequate sewage systems, human population growth, and land use characteristics can also contribute to the high levels of pollution (Carson et al. 2001). For example, Simpson et al. (2002) have reported that 80% of surface waters surrounded by pastures have bacterial concentrations above action levels. Fecal pollution can pose a high health risk to people who come into contact with contaminated water through drinking, bathing, and recreational or household uses of water (Guan et al. 2002). Determining the sources of fecal pollution can be useful information because human fecal material poses a greater risk to human health than fecal material from animals (Scott et al. 2003). Human fecal material is more likely to contain pathogens such as *Salmonella typhi*, Hepatitis A virus, *Shigella* spp., and the Norwalk viruses (Scott et al. 2003). All of these pathogens have low infectious doses (Scott et al. 2003). Although human fecal material poses a greater risk, fecal pollution (from any source) can be associated with outbreaks of waterborne diseases caused by *Vibrio cholerae, Campylobacter jejuni,* and *Escherichia coli* O157:H7 (Guan et al. 2002). Fecal source determination can also help determine necessary remediation efforts. If humans

are the main source of impact, then regulations may be more strongly enforced. However, if animals contribute the majority of the pollution (especially wild animals) the problem may be more difficult to control (Hartel et al. 2003).

Fecal pollution can also have financial implications for areas that rely on seafood harvesting or recreational water use (Parveen et al. 1999). For example, around one-third of the regions that rely on oyster harvesting in South Carolina are closed due to the health risk posed by consuming oysters found in these contaminated waters (Webster et al. 2004). In Tennessee, around 150 river miles are listed as contaminated due to fecal pollution (FDA 2004). Because of the possible health risks and the financial implications of fecal pollution, it is important to determine the sources of the pollution so that proper caution can be taken and the water bodies can be remediated.

Indicator Organisms

Because of the difficulties in culturing and testing for specific pathogens, indicator organisms are often used. Routine monitoring for these organisms is performed to make sure water bodies are meeting regulations and to protect public health (Carson et al. 2003). Effective indicators should be quickly detected, easily enumerated, nonpathogenic, reactive to changes in the environment similar to the pathogen of interest, and be strongly associated with the source of the pathogen of interest (Scott et al. 2002). Currently, the most commonly used indicators are the total coliforms, fecal coliforms, enterococci, and *E. coli* (Noble et al. 2003). Total coliforms are defined as gram-negative non-spore- forming bacteria that ferment lactose within 48 hours at 35°C. They are found in the gut of warm-blooded animals. Fecal coliforms are a subset of the total

coliform group, which are gram-negative non-spore forming bacteria that ferment lactose within 48 hours at 44.5°C. Other organisms that have been considered for use as indicators include *Bacteroides fragilis* phage, coliphages, acid-fast mycobacteria, *Clostridium perfringens*, Staphylococcus, Aeromonas, fecal anaerobes (*Bacteroides and Bifidobacterium*), and *Pseudomonas* spp. (Maier et al. 2000; Savichtcheva and Okabe 2006).

Total coliforms and fecal coliforms were considered the gold standard for water quality monitoring until research suggested that *E. coli* and enterococci concentrations correlated better with bather illness (Noble et al. 2003). Although the United States Environmental Protection Agency (US EPA) recommended the use of enterococci (marine) and *E. coli* (freshwater) recreational standards in 1986, not all states have implemented these regulations (Noble et al. 2003).

A specific fecal coliform that is used as an indicator is *E. coli*, which works well as an indicator because it is not normally pathogenic to humans and is found in higher concentrations than the pathogens it predicts (Harwood et al. 2000; Savichtcheva and Okabe 2006). A drawback of using *E. coli* as an indicator is that it is found in humans and warm-blooded animals, so determining a source is difficult (Harwood et al. 2000). Also, there are some strains of *E. coli* that are pathogenic to humans. For example, *E. coli* O157:H7 can cause serious infections in humans and may even result in death in children or immune-compromised individuals due to hemolytic uremic syndrome. *E. coli* O157:H7 is commonly found in animal waste, which can enter surface water via runoff.

Another group used as a bacterial indicator is the enterococci group, more specifically, the fecal streptococci. This group includes bacteria such as *Enterococcus avium, Ent. faecium, Ent. durans, Ent. gallinarium, Ent. facculis, Streptococcus bovis*, and *S.equinus* (other members of the genus *Streptococcus* are not considered true fecal streptococci). Fecal streptococci are defined as gram-positive bacteria, with the ability to grow in 6.5% sodium chloride, pH 9.6 at 45°C. These organisms are present in the fecal material of warm-blooded animals and persist in the environment similarly to some pathogens found in surface waters. However, the fecal streptococci also have some deficiencies as an indicator species. Fecal streptococci are not exclusively from fecal origins and regrowth can occur in the environment (Savichtcheva and Okabe 2006).

The current indicators do not meet all of the criteria necessary to be reliable. They lack specificity, strong association, and many other qualities of an ideal indicator. However, until easier, faster tests are created for specific pathogens, indicator monitoring is the best technology available. This is where the development of bacterial source tracking methods to determine specific sources can increase the usefulness of these indicators as tools for risk assessment (Scott et al. 2002).

Bacterial Source Tracking

Bacterial source tracking (BST) is a category of source tracking techniques in which bacteria are used as the target organism (Simpson et al. 2002). BST is based on the assumption that animals have species-specific markers or strains of bacteria within them (Hartel et al. 2003). Source tracking is a term used to describe chemical, microbiological, genotypic and phenotypic methods to trace the sources of fecal pollution

(Scott et al. 2002). Chemical methods that have been used include the detection of coprastanol and caffeine (Scott et al. 2002). Although many phenotypic methods have been tested, multiple antibiotic resistance and immunological methods have been the most successful in determining sources (Scott et al. 2002). Genotypic methods such as pulsed-field gel electrophoresis, ribotyping, rep-PCR, and ribosomal DNA heterogenicity have also been used (Scott et al. 2002, Carson et al. 2003). The detection of numerous animal or human-specific microorganisms, such as *Bifidobacterium spp., Bacteroides fragilis* bacteriophage, and F-specific RNA coliphage have also been used for determination of fecal pollution sources (Wiggins 1996; Scott et al. 2002; Cole et al. 2003). The fecal coliform/fecal streptococcus ratio was thought to be a good indicator of the source of pollution, but different survival rates of the bacteria, along with other environmental factors, has placed this method out of favor (Parveen et al. 1999). A comparison of the different source tracking techniques is displayed in Tables 1 and 2.

Table 1 Comparison of Molecular Source Tracking Methods (adapted from Scott et al. 2002; Simpson et al. 2002; Meays et al. 2004)

Technique	Target Organism(s)	Description	Advantages	Disadvantages	References
Ribotyping	*E. Coli*	Genomic DNA digested with restriction enzymes; Southern blot probed for rRNA sequences.	Results reproducible; discriminate between several categories.	Library required; labor intensive; no standard methods; expensive; geographic variation.	Carson et al. 2003; Hartel et al. 2003; Scott et al. 2003; Hartel et al. 2002; Carson et al. 2001; Parveen et al. 1999.
Repetitive PCR (rep-PCR)	*E. Coli*	Palindromic DNA sequences amplified with PCR; analysis after electrophoresis.	Easy; quick results; human vs. animal discrimination.	Library required; concern about reproducibility; geographic variation; cell culture necessary.	Carson et al. 2003; Sylvie et al. 2003; Dombek et al. 2000.
Pulsed Field Gel Electrophoresis (PFGE)	*E. Coli*; (*Lactobacillus casei*)	Genomic DNA digested with rare-cutting restriction enzymes; large fragments separated by electrophoresis.	Very sensitive and reproducible.	Library required; many be too sensitive for source tracking; assay time intensive.	Meays et al. 2004; Simpson et al. 2002; Tynkkynen et al. 1999.
Denaturing Gradient Gel Electrophoresis (DGGE)	*E. Coli*	PCR products separated by electrophoresis according to melting properties; fragments of same size but different sequence can be separated.	Can discriminate between isolates.	Library required; not as effective on environmental isolates; time intensive method; technical skill required.	Buchan et al. 2001; Farnleitner et al. 2000.
Ternimal Restriction Fragment Length Polymorphism (T-RFLP)	Bacteroides-Prevotella	Gene fragments of interest are fluorescently labeled; restriction enzymes and PCR used to detect and analyze.	No library required; no culturing necessary.	Technical skill required; equipment costly.	Bernhard and Field 2000 a, b.
Length Heterogeneity PCR (LH-PCR)	Bacteroides-Prevotella	PCR products separated based on length.	No library required; no culturing necessary.	Technical skill required; equipment costly.	Bernhard and Field 2000 a, b.

Table 2 Comparison of Non-Molecular Source Tracking Methods (adapted from Scott et al. 2002; Simpson et al. 2002; Meays et al. 2004)

Technique	Target Organism(s)	Description	Advantages	Disadvantages	References
Antibiotic Resistance Analysis (ARA) or Multiple Antibiotic Resistance Analysis (MAR)	Fecal Streptococci; *E. coli*	Determines sources based on resistance of isolates to a range of antibiotics at varying concentrations (ARA) or multiple antibiotics at only one concentration (MAR).	Easy to perform; quick; can discriminate between several sources.	Library required; geographic variation; prone to false positives; resistance genes may be on plasmid.	Webster et al. 2004; Whitlock et al. 2002; Harwood et al. 2000; Hagedorn et al. 1999; Wiggins et al. 1999; Parveen et al. 1997; Wiggins 1996; Krumperman 1983.
Fecal coliform; Fecal streptococci ration (FC/FS)	Fecal coliforms; Fecal streptococci	Enumerate fecal coliforms and fecal streptococci bacteria; ration indicates animal or human source.	Easy to perform; standard methods.	Survival rates of bacteria vary so ratio can be affected.	Hagedorn et al. 1999; Wiggins et al. 1999; Wiggins 1996.
Caffeine detection	Caffeine	Presence/absence of caffeine in water samples; presence indicates pollution from human source.	Can determine if human impact present.	Expensive detection; found in low concentrations; degraded in environment.	Meays et al. 2004; Scott et al. 2002; Simpson et al. 2002.
Fecal Sterols/ Fecal Stanols detection	Coprostanol; 24-ethyl-coprostanol; cholesterol, etc.	Detection of fecal sterols/stanols leads to determination of source based on species-specific types or ratios present.	Some can be very specific—24-ethyl-coprostanol in herbivores.	Expensive to detect; can be associated naturally with sediments.	Scott et al. 2002; Chan et al. 1998; Leeming et al. 1996.
Bifidobacterium sp.	*Bifidobacterium* sp.	Bifidobacteria predominantly found in human gut; some can be found in specific frequencies in animal species; sorbitol fermentation can discriminate human from animal source.	Cannot reproduce in environment; human-specific sorbitol fermenters.	Survival is variable in environment; culture methods not standard.	Scott et al. 2002; Rhodes and Kator 1999; Resnik and Levin 1981.
B. fragilis phage F + RNA phage	*B. fragilis* phage F + RNA phage	Serotyping of F + RNA phages determines groups that are specific to humans or animals. Presence of *B. fragilis* phage indicates human pollution.	No library required; host specificity high; *B. fragilis* phages only multiply in the environmentl under anaerobic conditions.	Culturing required; not all isolates can be typed; technical skills required.	Hsu et al. 1995; Tarter et al. 1989; Tartera and Jofre 1987; Furuse et al. 1981.

Antibiotic Resistance Analysis

Antibiotic resistance analysis (ARA) is a phenotypic method that will be used in this study. This method is based on the principle that the microflora present in the gut of various types of animals are subjected to different conditions, including different antibiotics at different concentration, for different amounts of time (Scott et al. 2002; Whitlock et al. 2002; Meays et al. 2004). These organisms eventually develop specific antibiotic resistance patterns (Harwood et al. 2000; Scott et al. 2002; Meays et al. 2004). ARA has been the most commonly used source tracking technique for small watersheds (Simpson et al. 2002). Source tracking based on antibiotic resistance profiles uses a "known" isolate library and compares the resistance patterns of unknown sources to the patterns in the reference library (Hagedorn et al. 1999; Whitlock et al. 2002). *E.coli* and fecal streptococci are commonly used for this procedure and have displayed similar accuracy in determining sources (Harwood et al. 2000). However, some researchers believe that the fecal streptococci are superior to *E.coli* for use in ARA due to their longer survival rates in the environment (Hagedorn et al. 1999; Wiggins et al. 1999).

ARA has been used successfully by several groups to determine sources of fecal pollution. Studies using fecal streptococci have produced correct classification rates from 64% to 100% (Wiggins 1996; Hagedorn et al. 1999; Wiggins et al. 1999). It has been demonstrated that placing isolates into fewer categories (i.e., human, domestic, wild) increases the rate of correct classification and comparing only human versus animal categories can produce correct classifications of 95% or higher (Wiggins 1996; Hagedorn et al. 1999; Wiggins et al. 1999). Harwood et al. (2000) showed that similar databases of

fecal coliforms and fecal streptococci produce correct classification rates that are comparable to each other (64% and 62%, respectively).

Ribotyping

Ribotyping is a molecular method based upon the highly conserved region of DNA, which encodes for ribosomal RNA (rRNA) (Parveen et al. 1999; Hartel et al. 2003). Because of this conserved region, ribotyping is one of the most reproducible of the molecular methods (Hartel et al. 2002; Hartel et al. 2003). Ribotyping involves the formation of a reference library, similar to ARA, for identification of the unknown isolate patterns (Hartel et al. 2003). DNA from bacterial isolates (usually *E.* coli) is extracted and digested with one or more restriction enzyme(s). The DNA fragments are then separated using electrophoresis and a labeled rRNA probe is used to generate characteristic patterns. Ribotyping has proven to be useful in discriminating between human and animal sources in previous research (Parveen et al. 1999; Carson et al. 2001; Scott et al. 2003). One issue of concern when dealing with this method is the variability of the known database (Hartel et al. 2003). Although DNA-based methods may be more stable than phenotypic methods, variation may be caused by factors such as diet and geographical locations (Scott et al. 2002; Simpson et al. 2002; Whitlock et al. 2002; Scott et al. 2003). To minimize variation, databases may need to be very large with isolates from a broad geographic region or exclusively constructed for a specific watershed with defined impacts (Scott et al. 2002).

Ribotyping discriminates between human and animal isolates better than other methods, but discrimination between multiple categories (e.g., human vs. dog vs. deer

etc.) is less reliable. As mentioned previously, *E. coli* is most commonly used in the ribotyping procedure (Parveen et al. 1999; Carson et al. 2001; Hartel et al. 2002; Carson et al. 2003; Hartel et al. 2003; Scott et al. 2003). When isolates were only classified based on human or non-human origin, the average rates of correct classification (ARCCs) were between 82% and 87% (Parveen et al. 1999; Carson et al. 2003). When more source categories or geographical variations were added to the method, ARCCs were not as high (Carson et al. 2001; Scott et al. 2003). Hartel et al. (2002, 2003) found that deer with a more varied diet (wild vs. penned) had more unique ribotypes and that even though geographical variation did create ribotype diversity, there were enough unshared ribotype patterns at individual locations to discriminate between source. Different combinations of restriction enzymes have been reported, including Hind III, Eco RI, Sal I, Bgl I and Pvu I (Parveen et al. 1999; Carson et al. 2001; Hartel et al. 2003; Scott et al. 2003).

Although ARA and ribotyping are useful for determining nonpoint sources of fecal pollution, both methods have limitations. The known source libraries (ARA and ribotype) may not be useable in watersheds other than those for which they were developed. Another limitation of the libraries is that the size of the known database may never be large enough. Although smaller databases generate higher average rates of correct classification (ARCCs), non-library isolates are more often misclassified than in larger databases (Wiggins et al. 2003).

Sinking Creek/ Clean Water Act

Sinking Creek is a 9.8 mile long tributary of the Watauga River that drains an area mainly located in Johnson City, Tennessee (TDEC 2000). Sinking Creek and its tributaries have 19.8 miles of impaired waters (TDEC 2000). According to the Tennessee Department of Environment and Conservation (TDEC), land use in the Sinking Creek watershed is 65.5% forest, 25.3% urban, and 9.0% agricultural (TDEC 2000). There are no known point sources of fecal pollution located on Sinking Creek; therefore, nonpoint sources are considered to be the major impact to the watershed (TDEC 2000). Sinking Creek has 2 designated uses established according to section 303(c) of the Clean Water Act: supporting aquatic life and recreation (TDEC 2000).

Section 303(d) of the Clean Water Act requires states to post their water bodies that do not meet the minimum criteria for water quality (TDEC 2000). In 1998, Sinking Creek was added to the list due to its failure to meet these criteria based on sampling results from 1993 (TDEC 2000). After addition to the impaired waters list, states must prioritize development of total maximum daily loads (TMDLs) for each impaired water body (TDEC 2000). TMDLs indicate the maximum amount of a pollutant a water body can receive without reducing water quality (TDEC 2000). The established TMDL for Sinking Creek is 1.212×10^{12} counts per 30 days (TDEC 2000). This creek is consistently over these levels, which is why bacterial source tracking could be very important to the water quality of Sinking Creek. Determining sources of bacterial input can allow more appropriate and cost-effective remediation efforts to be developed.

Objectives

The objective of this research is to evaluate the use of 2 bacterial source tracking techniques (ARA and ribotyping) to determine the sources of bacteria isolated from Sinking Creek. In order to meet this objective, several major goals were achieved. First, known source libraries of fecal streptococci (ARA) and *E. coli* (ribotyping) were collected and processed. Then, a collection of unknown isolates for ARA and ribotyping were processed and compared to the known isolate library for identification. The results of this research may help the Sinking Creek Watershed Alliance, TDEC, Tennessee Department of Agriculture, and other groups involved in the prevention and remediation of water pollution of fecal nature.

CHAPTER 3

MATERIALS AND METHODS

This research project was designed to achieve the objectives detailed in the introduction of this paper. Briefly, the objective was to use 2 bacterial source tracking techniques (ARA and ribotyping) to determine the sources of bacteria isolated from Sinking Creek. The experiments were designed to complete the 4 major steps necessary to achieve the objective. These steps that are addressed individually in each experiment are 1) building a known source library of antibiotic resistance patterns, 2) building a known source library of ribotype patterns, 3) comparing unknown fecal streptococci antibiotic resistance patterns to the library isolates for identification, and 4) comparing unknown *E. coli* ribotype patterns to the library isolates for identification.

Research Plan

This research consisted of 3 major phases. Phase 1 included the collection of samples (known and unknown), isolation of bacteria from sample media, and storage on slants (for fecal streptococci) or as isolated DNA (for *E. coli*) (Figure 2). Because the development of both types of profiles originated from the same samples, the library formation for both occurred simultaneously. Library development required quarterly sampling that lasted 14 months. This phase took place first and began in August of 2005. The details of the steps of phase 1 are described in the analytical methods section.

Phase 2 included replica plating for the fecal streptococci samples and DNA digestion, agarose gel electrophoresis, probe preparation, and southern blotting for the *E. coli* samples. This phase spanned a 13-month period, which allowed sufficient

processing and also left time for any unforeseeable problems. Based on the end of phase 1, this phase began in November of 2006 and continued through December 2007. The steps that were included in this phase are described in the analytical methods section.

Phase 3 consisted of the collection and statistical analysis of all the data. The antibiotic resistance patterns were given scores according to their resistance and the ribotypes were compared to determine if samples could be discriminated using this method. This was the last phase but took place throughout the entire experiment. The field and lab work was completed in December 2007, which provided enough time for the analysis and presentation of the data. The statistical analyses that were used in this experiment can be found in detail in the analysis of data section.

ARA	Ribotyping
Known sample + PBS or creek sample	Known sample + PBS or creek sample
Membrane filtration Enterococcosel broth 48 hrs at 37°C	Membrane filtration, MacConkey broth Streak MacConkey agar plates 24 hrs at 37°C
Pick colonies Screen for esculin hydrolysis (+) and catalase activity (-) Store on nutrient agar	Pick colonies Inoculate Luria + MUG broth 24 hrs at 37°C
Inoculate 96-well plate (Enterococcosel broth) 48 hrs at 37°C	Check Luria + MUG for fluorescence Use MUG positive colonies to inoculate LB broth, 24 hrs at 37°C
Replica plate onto TSA + antibiotic plates 24 hrs at 37°C	Prepare glycerol stock from LB culture DNA isolation—store at 4°C
Score plates based on growth compared to control	DNA estimation using UV spectrophotometry DNA digestion (HindIII) Gel electrophoresis
Transfer to binary code Discriminant Analysis SAS DISCRIM PROC	cDNA probe preparation Southern blotting, probe hybridization Pattern visually analyzed

Figure 2 ARA and Ribotyping Processes, used together to determine if sources could be discriminated between using these methods. ARA process as described by Wiggins (1996) and Wiggins et al. (1999). Ribotype process as described by Scott et al. (2003).

Sample collection

A sample library was formed taking known samples from recognized sources of impact. The known sources were collected from the watershed, so the number and type of samples found could not be controlled. The library collection was not sufficient using watershed sources only, so sources outside the watershed were also used. For the unknown source samples, 14 sites along Sinking Creek were already decided upon based on land use patterns, population demographics, bracketing of tributaries, and results from previous studies (Dulaney 2003).

Site description

Sinking Creek, a tributary of the Watauga River, is located in Washington and Carter Counties, Tennessee (Figure 3). Fourteen designated sampling sites were sampled quarterly and are described in the table below (Table 3).

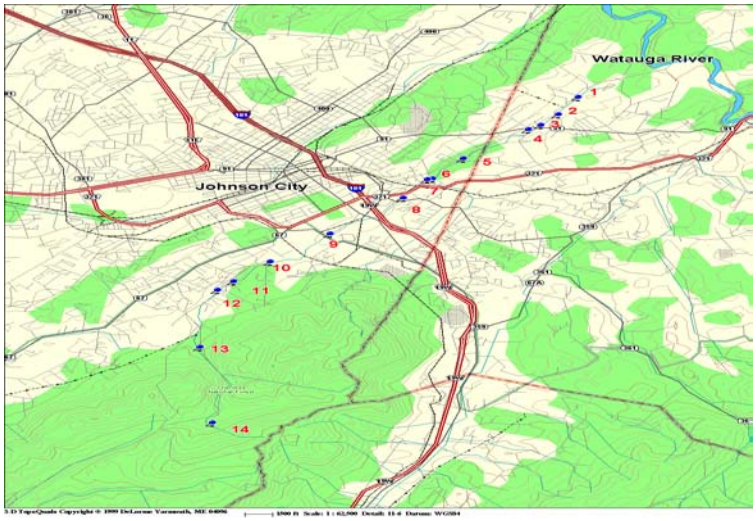


Figure 3 Location of Sinking Creek and Designated Sampling Sites (adapted from Dulaney, 2003)

Table 3 Sinking Creek Site Descriptions

Station Number	Locations	Description
1	New Sinking Creek Pump Station	50m downstream from pump station
2	Bob Peoples Bridge	25m upstream from bridge
3	Upstream from Sinking Creek Church	At bridge
4	Joe Carr Road	Behind last house on right at end of road
5	Dave Buck Road	Apartment construction with significant erosion
6	King Springs Baptist Church	Outside of fence surrounding parking lot
7	Old Sinking Creek Pump Station	Directly behind pump station
8	Upstream of Bosch NPDES discharge point	Approx. 150m upstream from discharge pipe
9	Lafe Cox Drive—West side of Buffalo Road	At golf course storage area
10	Bridge crossing Sinking Creek on Hickory Springs Road	Wood walkway built over exposed sewer pipe
11	Miller Lane	Upstream from concrete bridge
12	Berea Baptist Church	Upstream from tributary on David Miller Lane
13	Jim McNeese Road	Upstream of road crossing
14	Dry Creek Road	Approx. 5km upstream from site 13 and 500m from the road

Building ARA library

The first step was the collection and analysis of the antibiotic resistance patterns from bacteria isolated from the known sources of impact. All of the samples in this experiment were isolated, characterized, and analyzed in the same way. To develop antibiotic resistance patterns the methods described by Wiggins (1996) and Wiggins et al. (1999) were used. For each known source, the sample was divided into subsamples by weighing out the appropriate amount (0.1-1.0g) for filtration. Each subsample was then added to 5 ml of saline buffer, vortexed, and passed through a 47-mm diameter 0.45-µm-pore-size filter. In addition to the sample, 50 ml of saline buffer was added to the filtration cup to improve dispersion of bacteria on the filter surface. The inoculated filters from the isolates were placed in 50-mm petri dishes containing absorbent pads treated with 2.0 ml of Enterococcosel broth. These plates were incubated at 37°C for 48 hours. After incubation, colonies from each plate were transferred to nutrient agar slants for storage until further processing. The slants were incubated at 37°C for 48 hours, and then stored in the dark at room temperature. Isolates were transferred to nutrient agar plates after 3 weeks of growth on the slants. The inoculated plates were incubated for 48 hours at 37°C. At this time, the isolates were screened for catalase production and esculin hydrolysis and all confirmed fecal streptococci were used for further processing. A 96-well plate was inoculated with 95 different isolates (one well for control). Each microwell plate was processed separately. There were 5 antibiotics tested at 4 concentrations each and 1 plate without antibiotic used as a control. Each microwell plate was transferred using a 96-well Bel-Blotter (Sigma, St. Louis, MO) to 21 plates to develop resistance patterns (Figure 4).

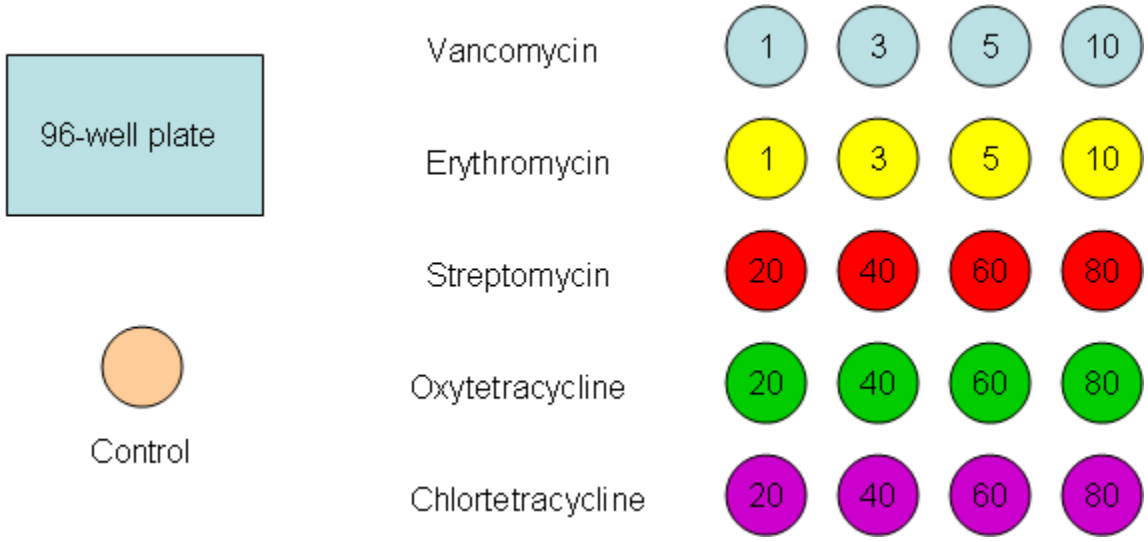


Figure 4 Replica Plating Method Used in ARA. Blotter used to transfer media from 96-well plate to each of the 21 plates with 1-80 µg/ml of the corresponding antibiotic in tryptic soy agar.

This replica plating method was repeated for all microwell plates, following the procedure outlined above. Due to the large number of isolates necessary to produce a useful library, isolates from known sources were collected during the entire study. The goal was to develop resistance patterns for 150 known isolates, as well as repeating any necessary steps to better characterize the samples. The resistance patterns developed during this experiment were used to identify unknown sources from the Sinking Creek watershed. The data from this procedure, along with the other unknown resistance patterns, were statistically analyzed using discriminant analysis. The average rate of correct classification (ARCC) was calculated for each source category comparison. A table divided into sources was generated in which the percentages of isolates classified correctly are found on the diagonal. The ARCC was calculated by taking the average of these percentages found along the diagonal.

Unknown Source ARA

The objective of this experiment was to develop antibiotic resistance patterns for isolates from unknown sources in the Sinking Creek watershed and to compare these patterns to patterns from the known source library to identify the sources of these isolates. The same procedure used for the known source library was used for the unknown sources (Wiggins 1996; Wiggins et al. 1999). Initially, a range of sample volumes were filtered to determine the volume that provided the best colony number and distribution for isolation. Sinking Creek has 14 designated sampling sites; I collected 3 samples from each site, a trip blank, and a field blank. This provided around 200 isolates to characterize. Due to the large amount of work and time necessary, quarterly samples were collected. The quarterly sampling provided a limited view of seasonal variation in the results. The data from this experiment was statistically analyzed using the same methods as used for the known source library.

Analytical Methods: ARA

Isolation of Fecal Streptococci

Fecal streptococci samples were isolated following the method described by Wiggins (1996) and Wiggins et al. (1999). Fecal samples from sources in the watershed were added (0.1 to 1.0 g) to 5 ml of saline buffer and vortexed. This buffer consisted of 8.5 g of NaCl, 0.3 g of KH_2PO_4, and 0.6 g of Na_2HPO_4 per liter of distilled water with pH adjusted to 7.3. These samples were filtered through 47-mm diameter 0.45-µm-pore-size filters. Fifty ml of saline buffer were put in the filter cup prior to filtration, to ensure dispersion of the sample. Varying amounts of the unknown samples (until an ideal volume was determined) were directly filtered, using sterile distilled water instead of

saline buffer. These filters (from known and unknown samples) were then transferred to a 50-mm petri dish containing an absorbent pad soaked with 2.0 ml of Enterococcosel broth. The filters were incubated for 48 hours at 37°C. After the 48-hour growth period, colonies were picked and transferred to nutrient agar slants for storage until a sufficient number of isolates were collected. After 3 weeks of growth on the nutrient agar slants, the isolates were transferred to nutrient agar plates for storage. After 48 hours of growth at 37°C, the isolates were screened for catalase production and esculin hydrolysis. Only confirmed fecal streptococci were used for further analyses. At this point, 96-well microwell plates containing Enterococcosel broth were inoculated, each well containing a separate isolate, and incubated at 37°C for 48 hours. As the microwell plates were inoculated, each isolate was also used to inoculate broth for a glycerol stock culture of each isolate.

Antibiotic Resistance Patterns

Antibiotic selection was based upon use in animals, humans, and the results of published studies. The antibiotics that were used and their concentrations are Chlortetracycline hydrochloride (20,40,60,80 μg/ml), Oxytetracycline hydrochloride (20,40,60,80 μg/ml), Streptomycin (20,40,60,80 μg/ml), Vancomycin (1, 3, 5, 10 μg/ml), and Erythromycin (1, 3, 5, 10 μg/ml). The isolates from the microwell plates were transferred, using a 96-well Bel-blotter (Sigma, St. Louis, MO), to trypticase soy agar plates that contained the antibiotics. A set consisted of 1 plate for each concentration of each antibiotic and a control plate (21 plates per set). The inoculated plates were incubated at 37°C for 24 hours. The resistance of the isolates was then scored depending upon growth (compared to the control) in the presence of the antibiotic (Wiggins 1996).

Building Ribotype Library

Similarly to the antibiotic resistance patterns, ribotype patterns were developed for the known sources. This was achieved using the ribotyping method described by Scott et al. (2003). Ribotype patterns were developed for 40 known source isolates. The original goal was a higher number, but all samples processed did not give results. The overall pattern success was 37%, which left other samples with no generated pattern due to unknown reasons. Some DNA samples were damaged, possibly due to storage or handling conditions. Also, some samples may not have hybridized with the DIG-labeled probe, thereby preventing detection using the DIG kit. Samples were streaked onto separate MacConkey agar plates and incubated at 37°C for 24 h. After incubation, the lactose-positive colonies from each sample were subcultured in Luria broth containing 0.5 mg/ml 4-methylumbelliferyl-β-D-glucuronide (MUG) (Villari et al. 1997). *E. coli* produces beta-glucuronidase, which cleaves the MUG substrate, resulting in a fluorescent color change. The MUG-positive isolates were grown in Luria-Burtani broth overnight and then the DNA was extracted using the Wizard Genomic DNA purification kit (Promega, Madison, WI). The concentration of DNA from each sample was estimated spectrophotometrically.

A digestion was set up for each sample using HindIII restriction enzyme. The samples were run on 1.0% agarose gel and transferred to a nylon membrane using the southern blotting technique (downward capillary transfer). The probe was prepared and hybridized with the target sequences present in the membrane, and the ribotypes were read by hand. The patterns generated were compared to determine if discrimination between sources could be achieved using this method. Like the antibiotic resistance

library, ribotype profiles from known sources were collected through the duration of the study. To achieve characterization of 40 library isolates, 8 gels were run.

Unknown Source Ribotype

This experiment generated ribotypes of unknown sources from Sinking Creek to compare to the known source library for identification. The procedure was the same as that which was used to form the ribotype library (Scott et al. 2003). The unknown samples are water, so MacConkey broth (and membrane filtration) were used instead of MacConkey agar (used for the known sources). Similarly to the ARA unknown samples, different volumes of water were filtered until the best volume for isolation was determined. Because of the number of samples and the time demands for ribotyping, only a percentage of the unknown samples were used in this section of the experiment. This percentage was processed the same as was previously described for known sources. Blanks and controls were processed throughout to ensure the quality of the data generated. The ribotypes formed were compared to the known ribotypes to identify sources of fecal contamination.

Analytical Methods: Ribotyping

Sample Collection

The same library of samples for known and unknown sources was used for ribotyping analysis. A ribotype pattern was established for all of the known source samples. A total number of 40 ribotype patterns for the known source isolates were collected. However, due to cost and time demands, only a fraction of the unknown

source isolates were used for ribotyping analysis. Ten isolates of the 200 unknown isolates were used for ribotyping analysis. This provided 50 ribotypes for analysis.

Isolation of *E.coli*

Isolation of *E.coli* was performed as described by Scott et al. (2003). Samples were streaked onto MacConkey agar plates within 24 hours of collection and incubated at 37°C for 24 hours. Unknown samples (water from Sinking Creek) were filtered and grown in MacConkey broth for 24 hours at 37°C. Lactose-positive colonies (red color on agar, yellow on broth) were picked and subcultured in Luria broth containing 0.5 mg/ml 4-methylumbelliferyl-β-D-glucuronide (MUG) substrate (Villari et al. 1997). Isolates that were MUG-positive were assumed to be *E.coli* and used for further analyses.

DNA Extraction

E. coli isolates were grown overnight in Luria-Bertani broth. Prior to DNA isolation, 700µl of the overnight culture was added to 300µl of 50% (v/v) glycerol, to store as a stock culture at -80°C. Using the Wizard Genomic DNA purification kit (Promega, Madison, WI), the DNA was extracted according to the manufacturer's instructions. DNA concentration was then spectrophotometrically determined.

Restriction Enzyme Digestion

A digestion of the sample DNA was set up using Hind III restriction enzyme. The digested DNA was then separated on a 1.0% agarose gel at 30 v for 16 h in a 1x Tris-acetate-EDTA buffer (TAE). The gel was stained with ethidium bromide and viewed under UV light.

Southern Blot

After the DNA was separated on the agarose gel it was used for southern blotting. The Turboblotter™ Rapid Downward Transfer System (Schleicher and Schuell, Keene, NH) was used to transfer DNA to positively charged nylon membranes using the downward capillary transfer method (according to manufacturers' instructions). Briefly, the gel was placed in a 0.25N HCl solution for 5 minutes. Next, the gel was immersed in denaturing buffer consisting of 1.5M NaCl and 0.5M NaOH for 30 minutes. The gel was rinsed with distilled water and then soaked in neutralizing buffer (0.5M Tris-HCl, pH 7.0, 1.5M NaCl) for 30 minutes. After this step, the gel was placed in 20xSSC transfer buffer (3M NaCl, 0.3M Na Citrate, pH 7.0) for 30 minutes. Finally, the gel was placed in the setup provided for southern blotting (according to manufacturers' instructions) and the DNA was transferred to a nylon membrane. To immobilize the DNA on the membrane, it was soaked in 5x SSC for 5 minutes, then baked at 80°C for 20 minutes.

cDNA Probe Preparation

This step of the ribotyping process was carried out according to a standard operating procedure provided by Dr. George Lukasik and Dr. Troy Scott. *E.coli* 16S and 23S rRNA (Roche, Indianapolis, IN) was reverse transcribed into cDNA using digoxigenin-dUTP labeled avian reverse transcriptase (Sigma, St. Louis, MO) following the manufacturer's instructions. This probe was then amplified and isolated for further use. The probe concentration and labeling efficiency was checked by performing a dot blot according to the DIG High Prime DNA Labeling and Detection Starter Kit I (Roche, Indianapolis, IN).

Hybridization

This process was carried out according to the DIG High Prime DNA Labeling and Detection Starter Kit I (Roche, Indianapolis, IN). To begin, the DIG Easy Hyb solution was pre-heated to the correct hybridization temperature (42°C). The membrane was prehybridized for 30 minutes with prehybridization solution in a hybridization incubator set at 42°C. Next, the DIG-labeled probe was denatured for 5 minutes and quickly cooled on ice. The denatured DIG-labeled DNA probe was added to the DIG Easy Hyb solution and mixed well without foaming. The prehybridization solution was then poured off the membrane and the probe/hybridization mixture was added. The membrane was incubated for 4 hours in this solution. After hybridization, a stringency wash was carried out. The membrane was washed twice for 5 minutes in 2x SSC, 0.1% SDS at 15-25°C. Then it was washed twice for 15 minutes in 0.5x SSC, 0.1% SDS at 65-68°C in the hybridization incubator.

Detection

The detection process was followed according to the DIG High-Prime kit (Roche, Indianopolis, IN). The membrane was first rinsed in washing buffer for 5 minutes. Then, the membrane was incubated for 30 minutes in 100 ml of blocking solution. Twenty ml of antibody solution was added next, and the membrane was incubated for 30 minutes. Two 15-minute washes followed, each in 100 ml of washing buffer. Twenty ml of detection buffer was added and the membrane equilibrated for 2-5 minutes. The membrane was then placed in 10 ml of color-substrate solution and allowed to incubate overnight at room temperature in the dark. After 16 hours, the reaction was stopped by

adding sterile distilled water. The pattern formed was recorded and used for comparison to other patterns for discrimination.

Quality Assurance/ Quality Control

Overview

Standard quality assurance/quality control procedures were followed. The samples gathered on each trip were considered 1 analytical batch. Blanks were run for every 20 samples or every analytical batch, based on the smaller number. Trip blanks and field blanks were analyzed to ensure proper transport and field sampling.

Field Sampling

All sampling data were recorded in a lab notebook. A field blank (i.e., a sample container filled with distilled water) was transported on each sampling trip and opened in the field to identify any contamination due to processing. A trip blank (i.e., a sample container filled with distilled water) was taken on each sampling trip to discover any contamination due to transport or processing. These blanks were processed exactly the same as all the samples.

Antibiotic Resistance Analysis

During the membrane filtration step of this procedure, a blank was filtered before beginning the samples, at the midpoint of the samples, and after all the samples were finished. Before the filtration of samples and between each sample, the filter apparatus was rinsed with ethanol and sterile water. In addition, a field blank and trip blank were processed to ensure quality. For the transfer to the microwell plates, 1 well in each

microwell plate was not inoculated, to serve as a blank. When replica plating, each set had 1 control plate to make sure the isolates would grow with no added antibiotic.

Ribotyping

During this method *E.coli* was isolated to extract DNA. A blank MacConkey agar plate was used for each analytical batch during the isolation process. Also, a Luria broth tube was left uninoculated as a blank for each analytical batch. After digestion of the DNA samples, agarose gels were run to check digestion efficiency. Known standards (DNA ladder and negative controls) were run with the samples during gel electrophoresis and carried through with southern blotting.

Analysis of Data

Antibiotic Resistance Analysis

Discriminant analysis was used to analyze the data gathered from this section of the experiment (Wiggins 1996; Hagedorn et al. 1999; Wiggins et al. 1999). The DISCRIM procedure in SAS software was used. Each of the known isolate's ability to grow in each concentration of antibiotic was analyzed, and the same was done for the unknown samples. This procedure allowed the determination of the average rate of correct classification (ARCC) for each source category comparison. By using this information, it was possible to determine how accurately individual sources can be classified. Sources were also grouped into human and animal to determine the ARCC between these 2 general categories. Other grouping took place based on the quality and amount of data gathered for each type of source.

Ribotyping

Once the ribotype patterns were read, different sources were compared to see if there were obvious visual patterns. Then, the unknown patterns were compared to the known patterns to see if they (the unknown isolates) could be visually identified.

CHAPTER 4

RESULTS

The objective of this research was to evaluate the use of 2 bacterial source tracking techniques (ARA and ribotyping) to determine the sources of bacteria isolated from Sinking Creek. Four experiments were designed to complete the steps necessary to achieve the objective. The steps that are addressed individually in each experiment are 1) building a known source library of antibiotic resistance patterns, 2) building a known source library of ribotype patterns, 3) comparing unknown fecal streptococci antibiotic resistance patterns to the library isolates for identification, and 4) comparing unknown *E. coli* ribotype patterns to the library isolates for identification.

Results of Water Parameters Monitored in Sinking Creek

Water samples were collected and processed by the East Tennessee State University Environmental Health Sciences Lab (EHSL) over a 1-year period. Fecal coliforms ranged from approximately 2.23×10^2 CFU/100ml in fall to 4.17×10^3 CFU/100ml in winter (Figure 5).

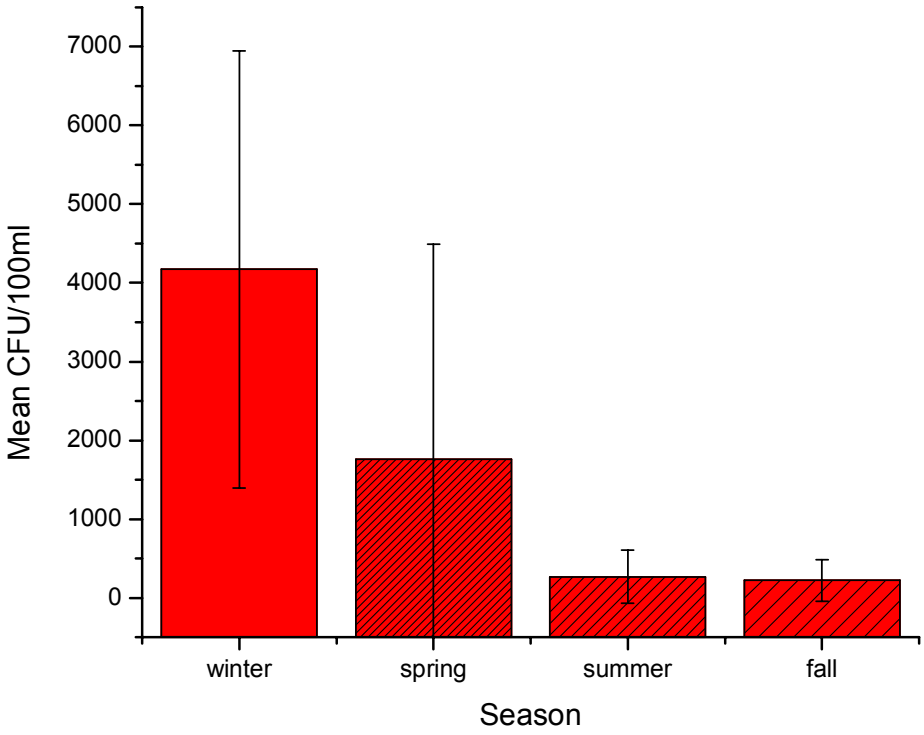


Figure 5 Mean Fecal Coliform Concentration by Season. Samples were collected from 14 designated sites along Sinking Creek over a 1-year study period. Numbers represent the mean colony forming units (CFU) per 100 ml. Error bars represent standard deviation of the sample set.

Fecal coliform levels decreased from site 1 (6.08 x 10^3 CFU/100ml) to site 14 (2.54 x 10^2 CFU/100ml), with the lowest number at site 11 (70.83 CFU/100ml) (Figure 6). The first 4 sites of Sinking Creek are considered agricultural and typically have the highest number of fecal coliforms present.

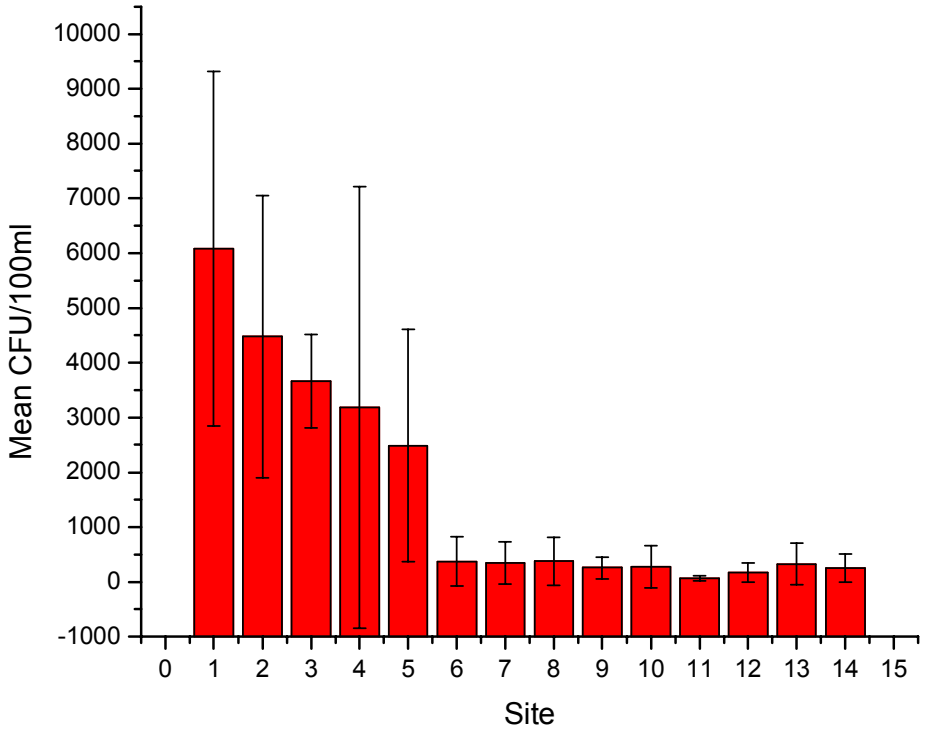


Figure 6 Mean Fecal Coliform Concentration by Site. Samples were collected from 14 designated sites along Sinking Creek over a 1-year study period. Numbers represent the mean colony forming units (CFU) per 100 ml. Error bars represent standard deviation of the sample set.

Biochemical oxygen demand (BOD) measurements ranged from 1.27 mg/l in the winter to 1.56 mg/l in the fall of 2006 (Figure 7).

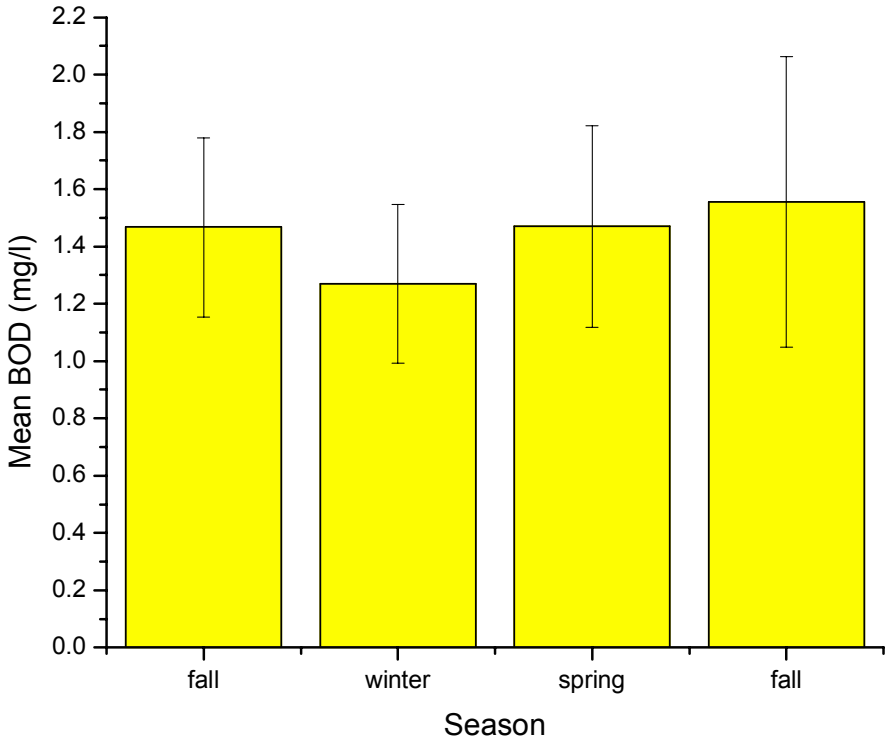


Figure 7 Mean Biochemical Oxygen Demand by Season. Samples were collected from 14 designated sites along Sinking Creek over a 1-year study period. Numbers represent the mean biochemical oxygen demand (BOD) in mg/l. Error bars represent standard deviation of the sample set. Samples for summer 2006 were not analyzed correctly and violated QC criteria and are therefore not reported.

Mean biochemical oxygen demand spanned a range of 0.50, with the lowest value at site 6 (1.17 mg/l) and the highest value at site 14 (1.67 mg/l) (Figure 8).

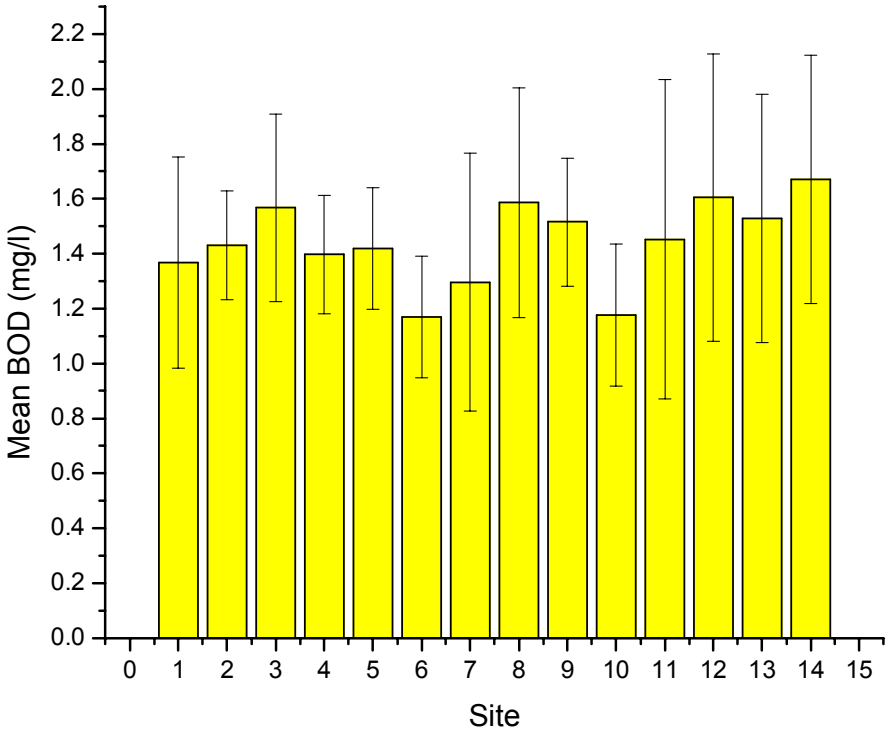


Figure 8 Mean Biochemical Oxygen Demand by Site. Samples were collected from 14 designated sites along Sinking Creek over a 1-year study period. Numbers represent the mean biochemical oxygen demand (BOD) in mg/l. Error bars represent standard deviation of the sample set.

Mean phosphate values were highest in the fall of 2005 at 0.13 mg/l and lowest in the spring at 0.10 mg/l (Figure 9).

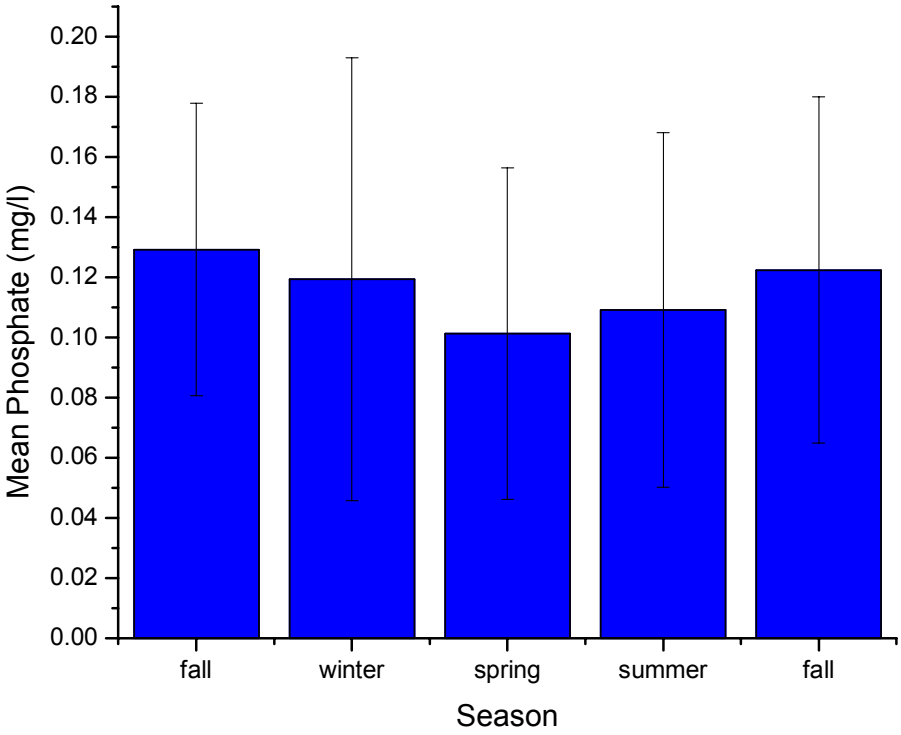


Figure 9 Mean Phosphate Concentration by Season. Samples were collected from 14 designated sites along Sinking Creek over a 1-year study period. Numbers represent the average phosphate present in mg/l. Error bars represent standard deviation of the sample set.

The highest average phosphate measurement was 0.15 mg/l, which was from site 8. The lowest average phosphate measurement was 0.08 from site 7 (Figure 10).

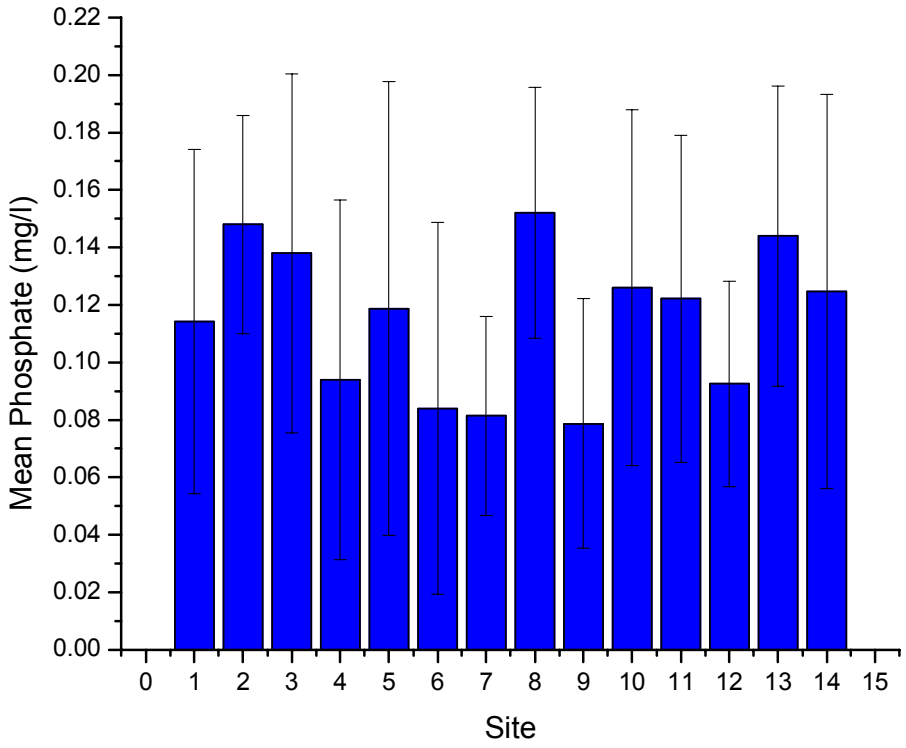


Figure 10 Mean Phosphate Concentration by Site. Samples were collected from 14 designated sites along Sinking Creek over a 1-year study period. Numbers represent the average phosphate present in mg/l. Error bars represent standard deviation of the sample set.

Nitrate concentration showed the highest average in the fall of 2005 (1.39 mg/l). The lowest average nitrate concentration was in the fall of 2006 (0.95 mg/l) (Figure 11).

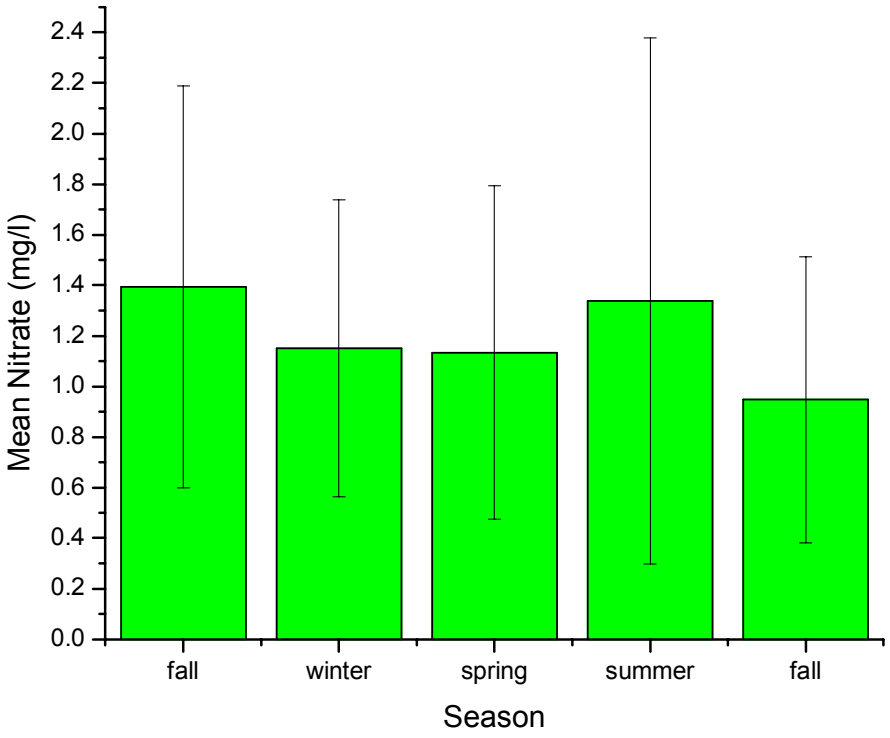


Figure 11 Mean Nitrate Concentration by Season. Samples were collected from 14 designated sites along Sinking Creek over a 1-year study period. Numbers represent the average concentration of nitrate present in mg/l. Error bars represent standard deviation of the sample set.

Average nitrate concentration was the highest at site 1 (1.63 mg/l). The lowest average nitrate concentration was at site 13 (0.77 mg/l) (Figure 12).

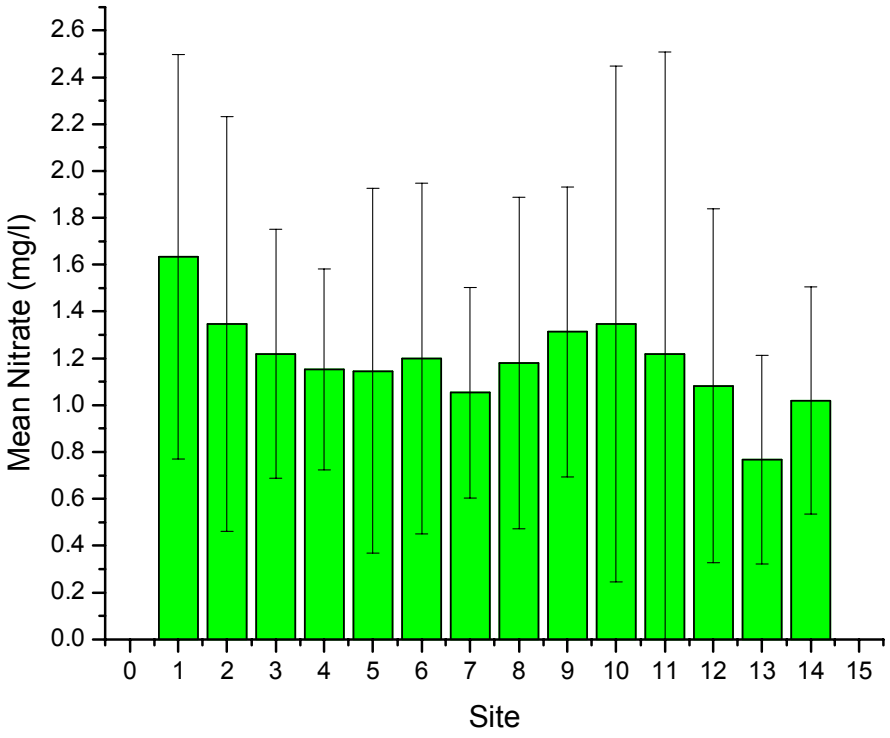


Figure 12 Mean Nitrate Concentration by Site. Samples were collected from 14 designated sites along Sinking Creek over a 1-year study period. Numbers represent the average nitrate concentration in mg/l. Error bars represent standard deviation of the sample set.

Results of Antibiotic Resistance Analysis

Ninety-six well plates were inoculated with isolates and replica-plated onto trypticase soy agar plates containing antibiotic. Figure 13 shows an example of how the plates looked after a 48-hour incubation period.

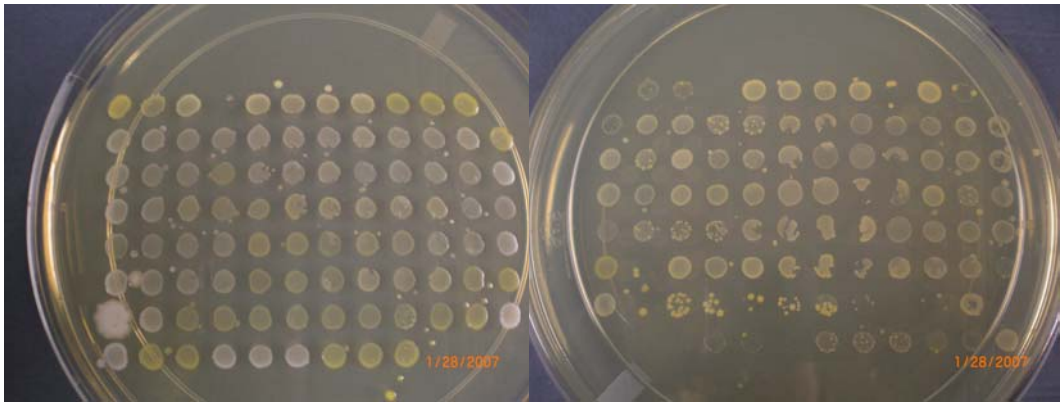


Figure 13 Replica Plating Example Results. Results of a control plate (no added antibiotic; left) and a test plate (20 µg/ml streptomycin; right). Test plates were scored based on growth compared to the control.

One set of antibiotic plates consisted of 21 plates; 5 antibiotics at 4 concentrations each and a control plate with no antibiotic. Therefore, each isolate had 21 "scores" that had to be translated into a 4-digit code for each antibiotic. Figure 14 shows how the individual scores were converted into 4-digit code to be used for statistical analysis.

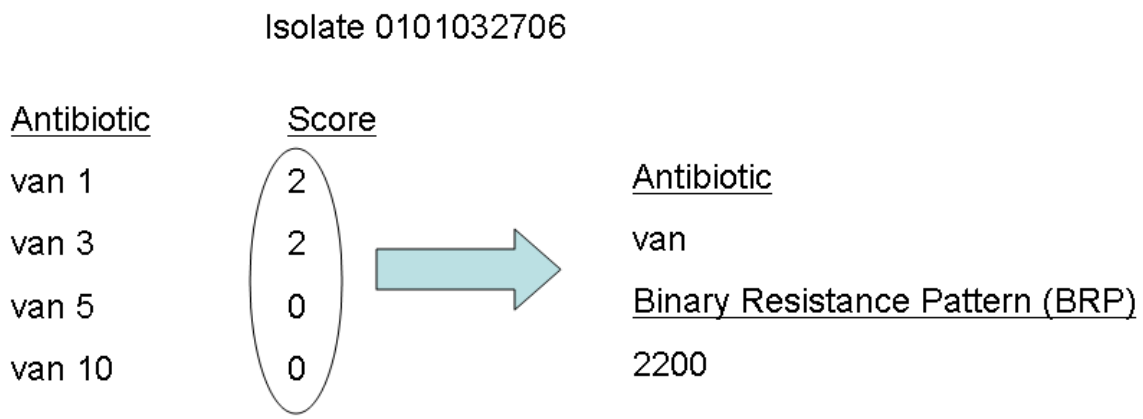


Figure 14 Individual Score Conversion to Binary Resistance Pattern. The single-digit score for each antibiotic concentration (i.e., van 1 is vancomycin 1 μg/ml) was converted into a 4-digit code used for statistical analyses. The 4-digit code was always listed from lowest to highest antibiotic concentration. The isolate used in this example is isolate 1 from sample 1, collected on March 27, 2006.

Isolate scores were statistically analyzed using discriminant analysis in the SAS program (SAS Institute Inc., Cary, NC). A resubstitution summary table using linear discriminant function was generated and used to calculate the average rate of correct classification (ARCC). The percentages were calculated on the diagonal and averaged to get the ARCC. Table 4 shows an example of this type of table and how the ARCC was calculated.

Table 4 Resubstitution Summary Using Linear Discriminant Function. Column 1 represents the origin of the sample. Columns 2-4 represent what the samples were classified as using the discriminant function. The top value in each cell is the number and the bottom is the percentage. The ARCC is an indicator of how well samples are classified in a data set.

SOURCE	ANIMAL	HUMAN	TOTAL
ANIMAL	418 58.87	292 (41.13)	710 (100.00)
HUMAN	119 (41.75)	166 58.25	285 (100.00)
TOTAL	537 (53.97)	458 (46.03)	995 (100.00)

(58.87 + 58.25) / 2 = 59% ARCC

The average rate of correct classification was calculated for the data set using the known sources only (source classification, broad category classification and human or animal classification; Tables 5-7).

Table 5 Classification Summary for Known Samples by Source. The number and percent (in parentheses) of isolates classified as each source were recorded in the table. Average rate of correct classification was calculated using the percentages along the diagonal. The ARCC for this data set is 31%.

SOURCE	CAT	COW	DOG	HORSE	WWTP	TOTAL
CAT	104 (61.18)	3 (1.76)	63 (37.06)	0 (0.00)	0 (0.00)	170 (100.00)
COW	154 (53.10)	31 (10.69)	100 (34.48)	0 (0.00)	5 (1.72)	290 (100.00)
DOG	13 (12.38)	17 (16.19)	75 (71.43)	0 (0.00)	0 (0.00)	105 (100.00)
HORSE	82 (56.55)	14 (9.66)	48 (33.10)	0 (0.00)	1 (0.69)	145 (100.00)
WWTP	106 (37.19)	13 (4.56)	133 (46.67)	0 (0.00)	33 (11.58)	285 (100.00)
TOTAL	459 (46.13)	78 (7.84)	419 (42.11)	0 (0.00)	39 (3.92)	995 (100.00)

Table 6 Classification Summary for Known Samples by Broad Category. Samples were divided into livestock, domestic, or wastewater treatment plant samples. The number and percent of isolates classified as each category are found in each box. Average rate of correct classification was calculated using the percentages along the diagonal. The ARCC for this data set is 36%.

SOURCE	DOMESTIC	LIVESTOCK	WWTP	TOTAL
DOMESTIC	20 (7.27)	117 (42.55)	138 (50.18)	275 (100.00)
LIVESTOCK	51 (11.72)	236 (54.25)	148 (34.02)	435 (100.00)
WWTP	45 (15.79)	106 (37.19)	134 (47.02)	285 (100.00)
TOTAL	116 (11.66)	459 (46.13)	420 (42.21)	995 (100.00)

Table 7 Classification Summary for Known Samples by Human or Animal Origin. Samples were divided into animal or human origin. The number and percent of isolates classified as human or animal source are found in each box. Average rate of correct classification was calculated using the percentages along the diagonal. The ARCC for this data set is 59%.

SOURCE	ANIMAL	HUMAN	TOTAL
ANIMAL	418 (58.87)	292 (41.13)	710 (100.00)
HUMAN	119 (41.75)	166 (58.25)	285 (100.00)
TOTAL	537 (53.97)	458 46.03)	995 (100.00)

Discriminant analysis of the complete data set gave ARCCs, but different subsets of antibiotics were also used to determine if higher ARCCs could be attained. These analyses were compared to other published data sets to determine if there was similarity between the antibiotic combinations achieving the highest ARCCs (Tables 8 and 9).

Table 8 Antibiotic Combinations and Associated ARCC. Different subsets of antibiotics were used in statistical analyses to determine which set could be used to achieve the highest ARCC. All numbers are expressed as percentages.

Antibiotic Combination	Sources	Broad Category	Human/Animal
V, E, S, O, C	31	36	59
V, E, S, C	27	42	56
V, E, O, C	31	39	56
V, S, O, C	32	45	51
V, E, S, O	26	42	54
E, S, O, C	31	39	60
V, E, C	27	38	53
S, O, C	34	**62**	59
E, S, C	29	39	59
V, S, C	33	46	49
V, E, S	25	43	52
V, E, O	27	37	52
E, S, O	29	39	58
V, S, O	33	46	53
E, O, C	35	44	**65**
V, O, C	**35**	40	55

(V = vancomycin, E = erythromycin, S = streptomycin, O = oxytetracycline, C = chlortetracycline. Sources: cow, dog, cat, horse, wwtp. Broad category: domestic, livestock, wwtp. Human/animal: wwtp or animal)

Table 9 Antibiotic Subset Comparisons.

Antibiotic Set	Source Category	ARCC	Source
C, O, S, SL	Cow, human, poultry, wild	84%	Wiggins 1996
A, E, O, S,T,V	Cow, human, poultry, wild	64%	Wiggins et al. 1999
C, O, V	Cow, horse, cat, dog, human	35%	this study
C, O, S	Livestock, domestic, human	61%	this study
C, O, E	Human, animal	64%	this study

(C = chlortetracycline, O = oxytetracycline, S = streptomycin, SL = salinomycin, A = ampicillin, E = erythromycin, T = tetracycline, V = vancomycin)

The ARCC was not calculated for the data sets analyzed that included unknown creek samples. The quality of the classification for these sets was determined by the number and percentage of unknown samples classified as unknown by discriminant analysis (Table 10).

Table 10 Percent of Unknown Samples Classified as Unknown by Discriminant Analysis.

Antibiotic Combination	Sources	Broad Category	Human/Animal
V, E, S, O, C	19.86	19.86	45.58
V, E, S, C	0	24.66	62.24
V, E, O, C	0	0	52.55
V, S, O, C	19.56	19.56	62.59
V, E, S, O	0	13.61	46.43
E, S, O, C	0	48.30	48.30
V, E, C	0	0	0
S, O, C	0	45.80	45.80
E, S, C	0	0	38.55
V, S, C	4.76	4.76	62.13
V, E, S	4.08	4.08	58.05
V, E, O	0	0	56.01
E, S, O	0	50.34	50.34
V, S, O	3.17	3.17	57.60
E, O, C	0	58.50	58.50
V, O, C	0	0	51.47

(V = vancomycin, E = erythromycin, S = streptomycin, O = oxytetracycline, C = chlortetracycline. Sources: cow, dog, cat, horse, wwtp. Broad category: domestic, livestock, wwtp. Human/animal: wwtp or animal)

Analyses were also performed to determine how unknown isolates were classified by site. The majority of unknown isolates were classified as coming from cat or dog sources, which was unexpected. A small number of isolates were classified as coming from the cow source category, which was suspected to be the greatest input to Sinking Creek.

Table 11 Classification of Unknowns by Site.

SITE	CAT	COW	DOG	HORSE	UNKNOWN	WWTP
1	28 (43.08)	0 (0.00)	24 (36.92)	0 (0.00)	9 (13.85)	4 (6.15)
2	28 (32.94)	0 (0.00)	29 (34.12)	0 (0.00)	28 (32.94)	0 (0.00)
3	43 (45.26)	0 (0.00)	33 (34.74)	0 (0.00)	12 (12.63)	7 (7.37)
4	40 (44.44)	0 (0.00)	32 (35.56)	0 (0.00)	18 (20.00)	0 (0.00)
5	43 (50.59)	17 (20.00)	24 (28.24)	0 (0.00)	0 (0.00)	1 (1.18)
6	32 (40.00)	0 (0.00)	28 (35.00)	0 (0.00)	17 (21.25)	3 (3.75)
7	19 (38.00)	0 (0.00)	20 (40.00)	0 (0.00)	11 (22.00)	0 (0.00)
8	32 (49.23)	0 (0.00)	22 (33.85)	0 (0.00)	11 (16.92)	0 (0.00)
9	0 (0.00)	13 (21.67)	13 (21.67)	0 (0.00)	34 (56.67)	0 (0.00)
10	44 (48.89)	18 (20.00)	25 (27.78)	0 (0.00)	0 (0.00)	3 (3.33)
11	NONE	-----	-----	-----	-----	-----
12	33 (44.00)	0 (0.00)	23 (30.67)	0 (0.00)	16 (21.33)	3 (4.00)
13	0 (0.00)	13 (26.00)	5 (10.00)	0 (0.00)	26 (52.00)	6 (12.00)
14	9 (36.00)	0 (0.00)	10 (40.00)	0 (0.00)	6 (24.00)	0 (0.00)

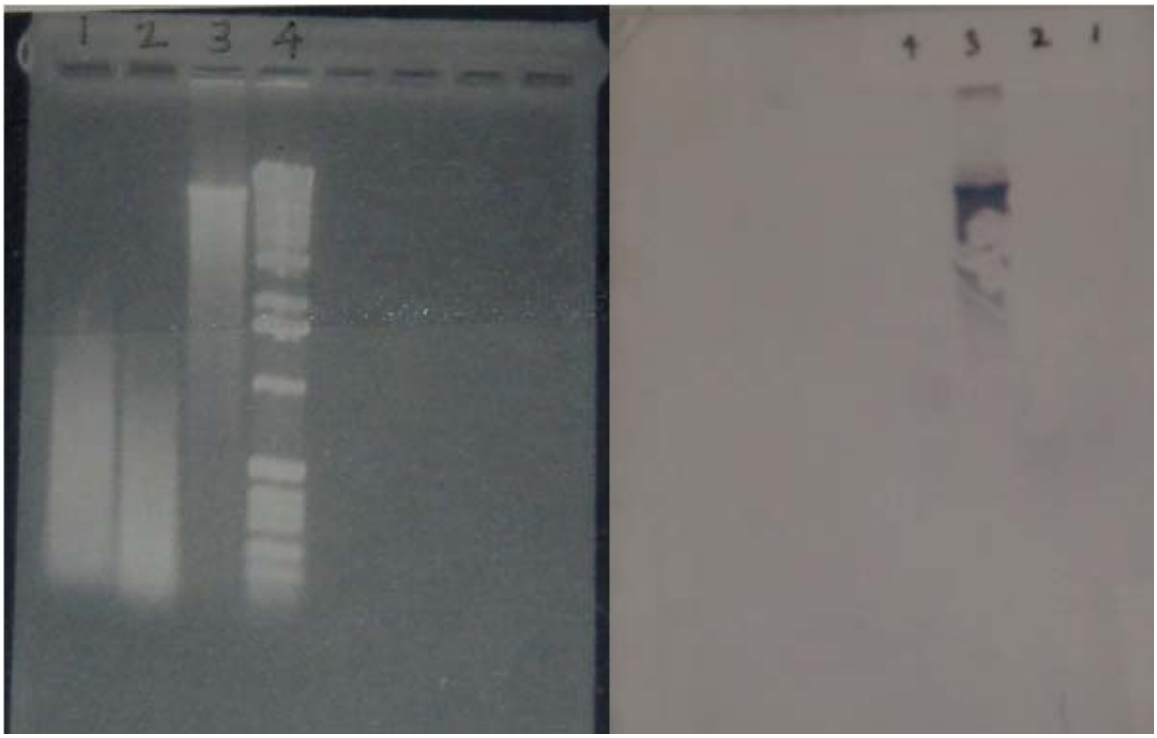
The percent of resistant isolates was calculated for each source at each antibiotic concentration (Table 12). The highest percentage of resistant isolates was 100 percent, which occurred in the dog samples at a streptomycin concentration of 20 μg/ml. The lowest percentage of resistant isolates was 0, which was present in cat samples at any concentration of the tetracyclines. Zero resistance also occurred in several source categories at higher antibiotic concentrations (i.e., vancomycin 10 μg/ml).

Table 12 Percent Resistant Isolates. Isolates were considered resistant if their growth was scored as a 1 or 2 compared to the control.

Antibiotic Conc. (μg/ml)	**Cow** (n=58)	**Horse** (n=29)	**Cat** (n=34)	**Dog** (n=22)	**WWTP** (n=57)	**Unknown** (n=196)
Vancomycin						
1	48	17	91	86	17	61
3	41	17	2	4	5	45
5	0	0	0	4	5	3
10	0	0	0	0	0	0.5
Erythromycin						
1	41	55	8	72	61	44
3	32	31	5	0	56	15
5	6	10	0	0	50	4
10	0	3	0	0	47	3
Streptomycin						
20	72	86	97	100	98	26
40	20	17	88	95	80	40
60	1	3	79	77	66	29
80	1	3	0	4	36	13
Oxytetracycline						
20	37	34	0	90	68	27
40	29	24	0	90	66	26
60	29	24	0	90	50	20
80	29	20	0	86	26	14
Chlortetracycline						
20	34	24	0	90	68	54
40	24	24	0	90	64	19
60	36	24	0	90	56	17
80	10	7	0	86	47	11

Results of Ribotyping

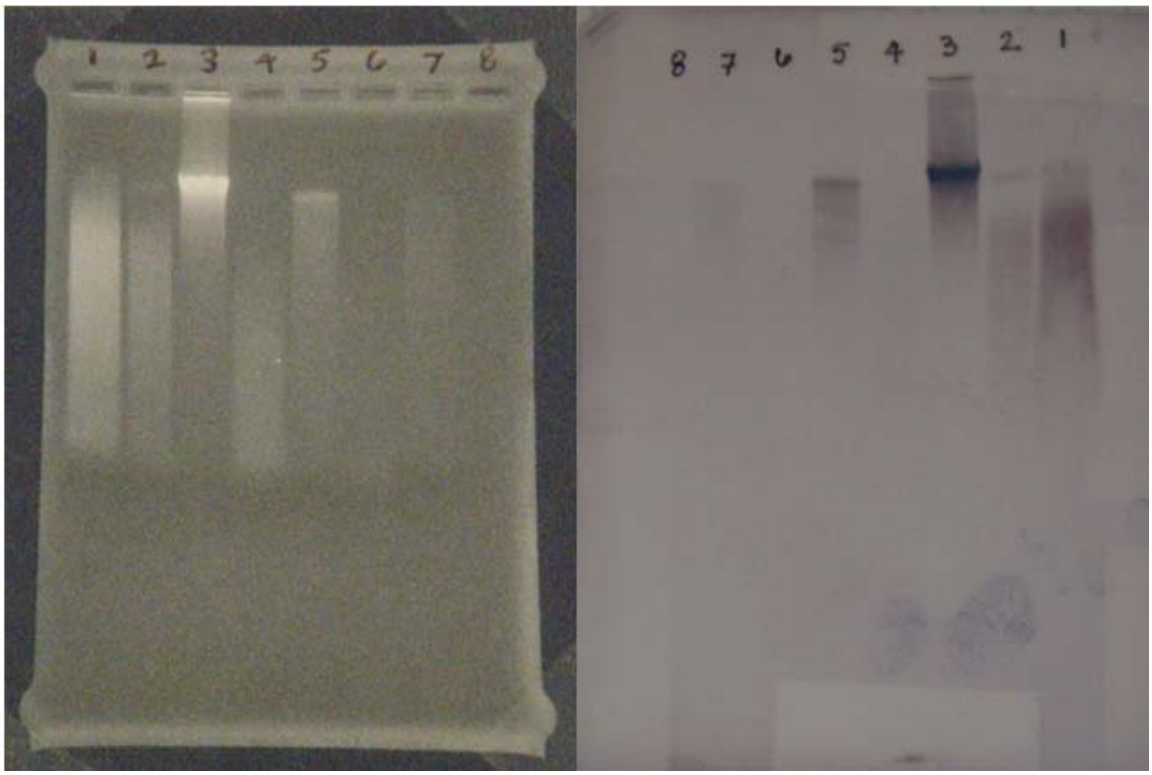
Initial attempts to digest and separate DNA bands failed and the visual data were not recorded. The next step was the digestion of one isolate using reagents from the EHSL and a neighboring lab to determine if the materials were causing the problem. It was determined that the enzymes and buffers were not the cause of the original problem and that more work needed to be done to optimize the method before moving to large scale (Figure 15).



Lane	Isolate	Source	Amount (µg)	Test/Control
1	0702090506	dog	5	test (EHSL)
2	0702090506	dog	5	test (other lab)
3	0702090506	dog	5	control
4	ladder	---	5	-----

Figure 15 Original Gel to Check Digestion. Digestion was checked using one DNA sample with one set of reagents (lane 1), a second set of reagents (lane 2), and a control sample (lane 3). The DNA ladder was in lane 4. Transfer and Hybridization was only successful for the control DNA, as visible on the nylon membrane (right). Membrane lanes are in opposite order from gel because the gel was blotted face down onto membrane.

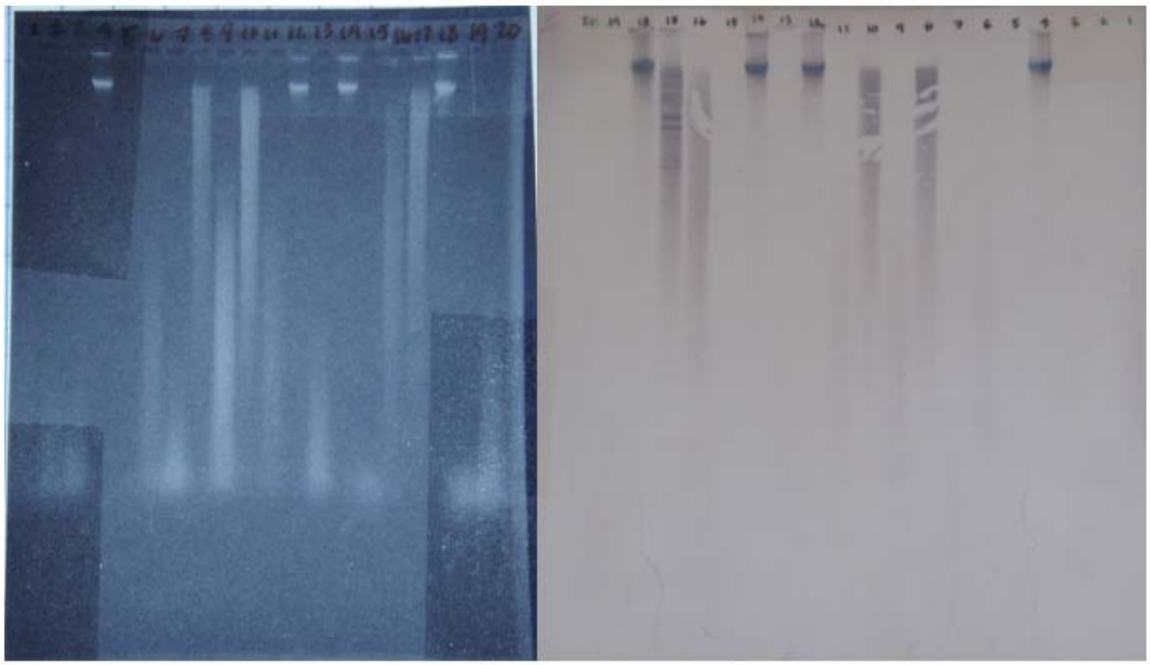
Figure 16 shows a gel run to practice the ribotyping method again before moving up to full size gels and membranes (13 x 16cm). The gel tested 3 different isolates and corresponding controls, and an additional well to test 2 different amounts of DNA digested.



Lane	Isolate	Source	Amount (µg)	Test/Control
1	0702090506	dog	5	test
2	0702090506	dog	1	test
3	0702090506	dog	5	control
4	0103110306	wwtp	1	test
5	0103110306	wwtp	1	control
6	0101121205	creek	1	test
7	0101121205	creek	1	control

Figure 16 Small Scale Ribotype Results. Each sample was run as a test (digested) and a control (no enzyme). Only two bands were clearly present in samples. Membrane lanes are in the opposite order from the gel lanes because the gel was blotted face down onto the membrane.

The remaining gels that were run were full scale (Figures 17-20). The band resolution was improved by increasing the running distance, lowering the voltage (so the sample would run more slowly), using only one restriction enzyme (HindIII), and by using less restriction enzyme (to decrease/prevent overcutting of the DNA). Some degradation of DNA samples was still present, but the band pattern generation rate increased as more gels were processed.

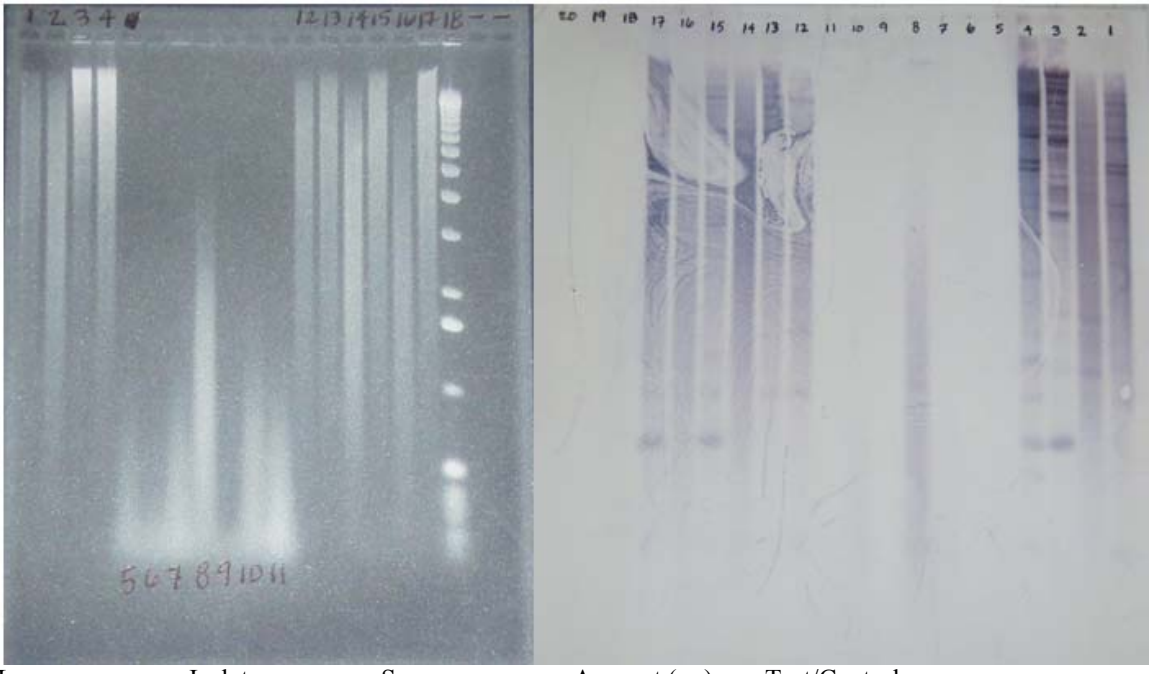


Lane	Isolate	Source	Amount (µg)	Test/Control
1	0202032706	cow	5	test (HindIII)
2	0202032706	cow	5	test (EcoRI)
3	0202032706	cow	5	test (HindIII/EcoRI)
4	0202032706	cow	5	control
5	0105090506	cat	5	test
6	0105090506	cat	5	control
7	0601090506	dog	5	test
8	0601090506	dog	5	control
9	0608110306	wwtp	5	test
10	0608110306	wwtp	5	control
11	0306032706	cow	5	test
12	0306032706	cow	5	control
13	0111090506	cat	5	test
14	0111090506	cat	5	control
15	0704090506	dog	5	test
16	0704090506	dog	5	control
17	0101021406	creek	5	test
18	0101021406	creek	5	control
19	0503051706	creek	5	test
20	0503051706	creek	5	control

Figure 17 Large Scale Ribotype I. First large gel run with test and control DNA. Many samples showed degradation in the agarose gel and did not transfer well to the membrane. Lane 17 (unknown sample) showed a clear band pattern on the associated membrane. Membrane lanes are in the opposite order from the gel lanes because the gel was blotted face down onto the membrane.

Lane	Isolate	Source	Amount (µg)	Test/Control
1	0204032706	cow	5	test
2	0205032706	cow	5	test
3	0307032706	cow	5	test
4	0308032706	cow	5	test
5	0310032706	cow	5	test
6	1201032706	cow	5	test
7	1205032706	cow	5	test
8	0101090506	cat	5	test
9	0103090506	cat	5	test
10	0104090506	cat	5	test
11	0106090506	cat	5	test
12	0107090506	cat	5	test
13	0108090506	cat	5	test
14	0109090506	cat	5	test
15	0501090506	dog	5	test
16	0502090506	dog	5	test
17	0503090506	dog	5	test
18	0504090506	dog	5	test
19	0505090506	dog	5	test
20	0602090506	dog	5	test

Figure 18 Animal Samples Gel and Membrane. Isolates 1-8 digested well, and transferred to the membrane. Resulting patterns on the membrane were from cattle isolates (1-7) and a cat isolate (8). Membrane lanes are in the opposite order from the gel lanes because the gel was blotted face down onto the membrane.



Lane	Isolate	Source	Amount (µg)	Test/Control
1	0105110306	wwtp	5	test
2	0108110306	wwtp	5	test
3	0202110306	wwtp	5	test
4	0301110306	wwtp	5	test
5	0302110306	wwtp	5	test
6	0303110306	wwtp	5	test
7	0602110306	wwtp	5	test
8	0603110306	wwtp	5	test
9	0605110306	wwtp	5	test
10	0607110306	wwtp	5	test
11	0609110306	wwtp	5	test
12	0104110306	wwtp	5	test
13	0106110306	wwtp	5	test
14	0107110306	wwtp	5	test
15	0201110306	wwtp	5	test
16	0109110306	wwtp	5	test
17	0110110306	wwtp	5	test
18	Ladder	----	--	control

Figure 19 Human Samples Gel and Membrane. Isolates 1-4 and 12-17 digested well and transferred to the membrane. The DNA ladder did not transfer and hybridize well. Membrane lanes are in the opposite order from the gel lanes because the gel was blotted face down onto the membrane.

Lane	Isolate	Source	Amount (µg)	Test/Control
1	0204032706	cow	5	test
2	0205032706	cow	5	test
3	0307032706	cow	5	test
4	0308032706	cow	5	test
5	0310032706	cow	5	test
6	1201032706	cow	5	test
7	1205032706	cow	5	test
8	0401121205	creek	5	test
9	0701121205	creek	5	test
10	0801121205	creek	5	test
11	0201021406	creek	5	test
12	0801021406	creek	5	test
13	0901021406	creek	5	test
14	0301051706	creek	5	test
15	0503051706	creek	5	test
16	0602051706	creek	5	test
17	0703081606	creek	5	test
18	0903081606	creek	5	test
19	1002081606	creek	5	test
20	Ladder	-----	5	control

Figure 20 Repeat of Figure 18 Samples. The cow isolates from figure 18 were not well-resolved due to a "swirl" pattern that blocked visualization of the band pattern. Seven of the isolates were repeated, along with an additional 12 unknown isolates. Digestion was successful in approximately 12 of the samples, however, the band patterns were once again blocked by a "swirl" pattern.

CHAPTER 5

DISCUSSION

The objective of this research was to evaluate the use of 2 source tracking methods to identify sources of fecal pollution in Sinking Creek. Two source tracking methods, antibiotic resistance analysis (ARA) and ribotyping, were used to achieve this objective. Unknown isolates from Sinking Creek were compared to known source isolates and classified into source categories based on resistance to different antibiotics and differences in ribosomal RNA. To account for seasonal trends, samples were collected quarterly for one year.

Monitored Water Quality Parameters from Sinking Creek

Based on the data collected from the quarterly sampling trips of Sinking Creek, the highest mean concentration of fecal coliforms occurred in winter (Figure 5). Although winter would not be expected to have the highest fecal coliform numbers, there are several possibilities for why this occurred. The winter season was represented by one sampling trip, which could mean the high level of bacteria was an isolated event. Rainfall or warmer temperatures could have occurred, leading to higher than expected fecal coliform levels. However, based on local climatological data, neither of these factors occurred (NOAA 2008). Average temperature for February 2006 was 36.6° F, which was 1.4 degrees cooler than normal (NOAA 2008). The total monthly precipitation for February 2006 was 1.98 inches, 1.42 inches less than normal (NOAA 2008). Also, no significant temperature increases or rainfall events occurred in the days

prior to the sampling event (NOAA 2008). An additional explanation could be that the low temperatures in winter aid survival of the bacteria after contamination. In Figure 6, the highest average fecal coliform counts occur at sites 1-5. The mean fecal coliform counts for sites 1-5 are all above the action level mandated by the State of Tennessee to protect recreational surface waters. These sites are expected to and have consistently had high fecal coliform levels according to research by the East Tennessee State University Environmental Health Sciences Laboratory (unpublished data, 2008). Based on the land use patterns sites 1-5 are primarily used for agriculture, so pastureland runoff and cattle watering are expected to contribute to the bacterial loading of Sinking Creek. Figures 7-12 display the chemical parameters measured for Sinking Creek. Unfortunately, no clear trends can be deduced from these data. There does not appear to be any correlation between the chemical parameters and the amount or source type of bacteria present by season or site.

Antibiotic Resistance Analysis

Several research groups have demonstrated the usefulness of using antibiotic resistance analysis (ARA) as a source tracking technique to identify sources of fecal pollution (Wiggins 1996; Parveen et al. 1997; Hagedorn et al. 1999; Wiggins et al. 1999; Harwood et al. 2000; Whitlock et al. 2002). The results of this research are not as convincing. Figure 13 shows the results of the replica plating method used to perform ARA. When scoring these plates, the results are very subjective. In this study the same analyst scored all of the plates used for analyses, but the scoring system was still not exact. As the analyst becomes more experienced, the scoring may become more

consistent; however, standardization would be difficult for this step in the process. The antibiotic set used, source categories used, and the transfer of scores to code (Figure 14) are steps of the method that could be standardized. Large data sets can make up for some of the inconsistencies, but regulatory agencies may not accept these results unless technicians are adequately trained to perform the methods and years are devoted to collecting and processing samples to obtain a database that is representative.

Known Source Data

The purpose of using only samples from known sources was to determine the average rate of correct classification (ARCC). The data set consisting of only known sources was statistically analyzed using the DISCRIM procedure in SAS 9.1 (SAS Inst., Inc., Cary, NC) to place isolates into a source category using a discriminant function. The ARCC described how well a data set was classified. Table 4 demonstrates how the ARCC is calculated for a data set.

When performing analyses, the data were grouped 3 ways to determine which type of categorization would produce the highest (best) ARCC. The data were grouped first by source (cow, horse, cat, dog, and wastewater treatment plant (WWTP) influent), then by broad category (domestic animals, livestock animals, and WWTP), and finally by human (WWTP) or animal origin. It should be noted, however, that municipal WWTP influent can contain animal waste in addition to human waste. For the purposes of this study, WWTP samples will be called "human" samples.

The trend present in this data set was that decreasing the number of source categories resulted in an increased ARCC. When the data were discriminated by source

(5 categories) the ARCC was 31% (Table 5). The ARCC increased to 36% when the data were discriminated by broad category (3 categories; Table 6). Similarly, when the data were discriminated by human or animal origin (2 categories), the ARCC increased to 59% (Table 7). Wiggins (1996) found that decreasing the source categories from 6 to 4 increased the ARCC of the set from 74% to 84%. This is an important trend because it can dictate the source categories selected for use in a source tracking project. If a project only needs to determine whether human or animal pollution is affecting a water body, then only 2 source categories need to be used. This will provide a higher ARCC than if individual source categories were used. Although this can be considered an advantage of the method, it is also a shortcoming. Technical methods in which minor changes can alter the results cannot be considered sound.

Similar to the different source category analyses, different antibiotic combinations were used with the known source data to see if any combination resulted in improved ARCCs. The highest ARCCs for each source category distinction were 35% (source discrimination), 62% (broad category discrimination), and 65% (human/animal discrimination; Table 8). This was expected based on published research (Wiggins 1996) and the discussion above.

The antibiotic sets that produced the highest ARCCs for each source category included both oxytetracycline and chlortetracycline. These two antibiotics were also in the set used by Wiggins (1996) that achieved the highest ARCC (Table 9). According to the United States Food and Drug Administration (FDA), the tetracyclines (including oxytetracycline and chlortetracycline) are used in cattle, swine, chickens, turkeys and honeybees to treat a range of bacterial infections (FDA 2008). Based on this, more

research should be done to determine if chlortetracycline and oxytetracycline should be included in standardized antibiotic sets used for ARA. Although regional and temporal trends would still have to be considered, development of a standard set of antibiotics to use for ARA would make the method more standardized and, therefore, more useful for routine purposes.

An important issue to consider when analyzing these data is the classification that would be expected due to chance. For the broad category discrimination, random classification would result in an ARCC of 33%, meaning 36% is not very reliable classification (Table 6). The human or animal category discrimination would have a random classification rate of 50% (Table 7). Once again, the ARCC for this source category (59%) is not much better than the rate for random classification. Wiggins (1996) suggested the promise of ARA because the correct classification rates that were achieved were much higher than what would be expected due to chance. The ARCC for those data was 72% when using 6 source categories. This was much higher than the 17% that would be correctly classified based on chance alone. The role chance plays in correct classification is important to consider when deciding what "acceptable" classification rates are.

It is clear that discrimination between sources could not be accomplished with this data set. Data must be more broadly categorized to reach an acceptable classification rate. Higher classification rates were achieved when the data categories were modified; however, what counts as acceptable is still undecided. Harwood et al. (2000) state that greater than 50% of isolates should be correctly classified when using 5 or more source categories to consider a database useful. It has also been estimated that regulators would

probably aim for classification rates around 70% to 80% (Harwood et al. 2000). Using this as a standard view of "acceptable" would deem all results from this study unacceptable for use.

Previous research using ARA has achieved "acceptable" classification rates (Wiggins 1996; Parveen et al. 1997; Hagedorn et al. 1999; Wiggins et al. 1999; Harwood et al. 2000; Whitlock et al. 2002). However, some studies that have achieved desirable ARCCs have had to use different techniques to alter the classification rates. Wiggins (1996) went from using 6 source categories (ARCC 74%), to 4 (84%), and then to 2 in order to achieve a 95% ARCC. Hagedorn et al. (1999) used the same approach, decreasing the source categories from 4 to 2, leading to a 14% increase in the ARCC (82% to 96%). In a publication from 1999, a slightly different method was used to reach the best ARCC reported to date. The source category number and antibiotics remained the same, but the researchers compared isolate-level to sample-level grouping (Wiggins et al. 1999). The isolate-level analysis resulted in an ARCC of 64% to 78% (performed on 3 different size sets). When the isolate scores were averaged, this created the sample-level that produced an ARCC of 98%. These examples all demonstrate how antibiotic resistance analysis is a method in which the outcome is greatly affected by sampling design decisions.

The usefulness of this method must be questioned when its results change with manipulations of antibiotics used, concentrations of antibiotics used, and source categories. When minor changes such as these can alter the results of an experimental method, it cannot be considered robust.

Unknown Source Data

The unknown source data were converted into binary resistance patterns and combined with the known source data. The main purpose of this step was to determine if unknown isolates could be identified using the database of known sources. Additional goals were to determine how the isolates were classified by site and to determine the percent of resistant isolates for each antibiotic.

The unknown isolates were partially classifiable. When the data were classified by sources, there were 11 antibiotic combinations in which all of the unknown isolates were classified (Table 10). When the source categories were reduced to 2 (human or animal), between 39 and 63% of unknown isolates were not classified. A possible explanation for this trend is that more source categories provide a greater variety of resistance patterns, thereby increasing the probability of a match and thus allowing more of the unknowns to be classified. When there are only 2 source categories (i.e., human or animal), it may be more difficult to classify the unknown isolates using a discriminant function.

Two previously published studies achieved 100% classification of unknown isolates (Wiggins 1996; Harwood et al. 2000). Wiggins (1996) had 100% classification of unknown isolates using 6, 4, and 2 source categories. Harwood et al. (2000) used 7 source categories and had 100% classification as well. The isolate numbers used in these published studies were greater than the isolate numbers used in this study, probably making the source categories more representative. This could explain why some of the unknown isolates from this study were not able to be classified.

One antibiotic combination did not follow this trend. All unknown isolates were classified in the vancomycin, erythromycin, chlortetracycline (V, E, C) antibiotic set, regardless of source category number (Table 10). This stood out because it was the only set in which all unknown isolates were classified. Although there are no clearly identified reasons why this would occur, there are several potential explanations. The antibiotic combination (V, E, C) could be well-suited for classification of the bacterial population that was isolated from the environment. Also, the mode of action of each antibiotic in this set could affect the classification of unknowns. Bacteria are susceptible to a variety of antibiotics based on previous exposure, genetic elements, and defense mechanisms against certain antibiotic modes of action. This can result in better or worse classification based on the bacterial population of the sample.

The classification of unknown isolates by site gave unexpected results. Although cattle are suspected to be one of the main nonpoint sources to impact Sinking Creek, classification of unknown isolates as cattle was low (Table 11). There are at least 3 possible explanations for the low number of cattle isolates from Sinking Creek. The lack of rainfall may have resulted in decreased pastureland runoff. Based on local climatological data, this could have been an issue because the average rainfall for the first three sampling trips (fall, winter, spring 2006) was below normal (-0.68", -1.42", -2.03", respectively; NOAA 2008). The only trip that would not support this explanation was the summer 2006 sampling date (08-16-06). The average precipitation for the month of August was 2.25 inches above average (NOAA 2008). The BMPs that have been put in place on Sinking Creek are buffer zones and blocking livestock (cattle) access to the

creek. These BMPs may be working and therefore have reduced the runoff loading into Sinking Creek.

Another important factor is that a small number of known samples were collected and these might not be representative of the cattle populations on Sinking Creek. Usually, the larger the number of isolates from a known source type, the more representative they are of the source. Previously published research determined the size of the library needed to be representative of the water body of interest (Wiggins et al. 2003). This group found that only the largest database (2,931 isolates) was representative and could classify unknown isolates as well as known isolates (Wiggins et al. 2003).

No unknowns were classified as horse isolates. This result is not surprising, however, because horses are not present in large numbers around the creek and are not suspected to play a major role in the bacterial loading of Sinking Creek. The source category that most unknown samples were classified as was cat. This may be because the cat sample was more representative. It is also possible that cats contribute a large part of the bacterial loading to the creek. Cats are typically allowed more freedom to run, whereas dogs and other domestic animals are usually leashed or penned in. However, the percentage of unknown isolates classified as dog was not much lower than those classified as cat isolates (Table 11). For several sites, there was not a significant difference between the percentage of isolates classified as cat or dog (site 2: 32.94-34.12, respectively).

The percent of resistant isolates for each source category and antibiotic concentration are listed in Table 12. Dog and WWTP samples were generally the most resistant to the 5 antibiotics (Table 12). The WWTP samples were highly resistant to all

levels of each antibiotic except vancomycin. Other than high concentrations of STR and VAN, cat isolates tended to be the least resistant (Table 12). The highest percentage of resistant isolates was 100%, which occurred with dog samples grown at streptomycin 20µg/ml. This concentration of streptomycin had the highest percentage of resistant isolates for all known source categories. The unknown samples did not follow the same trend; the highest percentage of resistant isolates for unknown samples was to vancomycin at 1µg/ml. Generally, the unknown isolates expressed moderate resistance. Wiggins et al. (2003) found poultry isolates to be the most resistant and wild isolates to be the least resistant. Again, this displays the variation of antibiotic resistance due to geographic and temporal variation, which is an obstacle to overcome before ARA could be used for routine analyses.

Antibiotic resistance analysis as a source tracking technique is based on the assumption that selective pressure and different exposure to antibiotics creates a resistance pattern that can distinguish one source type from another. Bacteria can become resistant to antibiotics through several processes, including ones that do not follow the assumptions of this method (i.e., plasmid transfer). Antibiotics and the ways in which they are used have changed significantly with time. As antibiotic use changes, so will the patterns used for this method. The slow nature of this method does not bode well for its use over time, especially with the speed at which bacteria are increasingly becoming resistant to drugs. In the time it takes to generate a large enough database (i.e., several years), patterns of antibiotic use and resistant bacteria could change significantly.

Ribotyping

In this study, 2 source tracking techniques were used. One of the major benefits of using more than 1 method is that the degree of agreement between the results can be used to assess confidence in the likelihood that an identified source is real. Ribotyping was selected to use with ARA because it is a genotypic method. This was a benefit because genotypic methods are DNA based, which makes them generally more stable than methods based on phenotypic characteristics. For example, antibiotic use and plasmid transfer can affect ARA, but the region of DNA encoding rRNA is highly stable.

Ribotyping used for source tracking has several issues that have to be accounted for or overcome in order to make it a standard protocol for water monitoring. First, is the large number of isolates needed to create a database that is representative of a water body. Although the number of samples needed to make a sufficient library is still undefined, the general opinion is that more is better. In this study, 113 *E. coli* isolates were processed, which was a relatively low number compared to published research. For example, Hartel et al. (2002) used 568 *E. coli* isolates, Carson et al. (2003) used 482, and Scott et al. (2003) used 401. The small number of isolates used in this study could decrease the representativeness of the library and the statistical significance of the results.

An issue related to the size of the library is the number of isolates that generate useable band patterns. Of the 113 isolates, only 42 useable band patterns were generated (22 different isolates). Although the rate of success increased with additional membranes processed (from 5% on 7/16/07 to 74% on 11/30/07), the amount of wasted time and supplies for the samples that did not work was apparent. The overall band pattern success rate was 37%, indicating that more than half of the samples processed did not

produce a band pattern. Generally, the literature does not discuss how many isolates had to be processed to get the numbers reported, but this study has demonstrated that the process required a large number of isolates to prepare for unsuccessful band pattern generation. The database size issue has been addressed by other researchers as well. Lasalde et al. (2005) questioned the use of source tracking methods due to the need for "enormously large" isolate numbers for method success.

As mentioned previously, the number of isolates processed that generated useable band patterns was small. Because of this, statistical analyses were not used to discriminate between source categories. Without the discrimination capabilities of a statistical program (i.e., SAS DISCRIM procedure), significant identification was not possible. The human samples displayed a concentration of bands with little separation between each single band or each doublet (Figure 19). Also, the number of bands in human isolate patterns was generally higher than the number found in animal isolate patterns. The band patterns generated for human and animal isolates had between 5 and 20 bands. Ribotypes of 287 *E. coli* isolates, from human and animal sources, were generated by Carson et al. (2001). Although no distinction was made between human or animal sources (related to band number), these band patterns contained between 6 and 12 bands (Carson et al. 2001). Usually, a sample from a single bacterial strain will contain several rRNA copies (Parveen et al. 1999). In this study, the origin of "human" samples was wastewater treatment plant (WWTP) influent, which could have mixed input. This could explain the higher number of rRNA copies present in the human isolates, because mixed cultures could have several copies per strain and any number of strains in a

sample. Alternately, animal samples were collected directly from the source to ensure the content of the sample.

The second issue that has to be accounted for in the ribotyping process is the genetic diversity of *E. coli*. Based on the 22 isolates that created band patterns, there was definitely variation within and between sources. In Figure 20 this variation can be seen within the 7 cow isolate band patterns, or between the cow (7) and creek (3) isolate band patterns. Lasalde et al. (2005) found a different band pattern for almost all analyzed *E. coli* isolates. Similarly, the control strain used for ribotyping by Hartel et al. (2003) produced different band patterns between gels. It is clear that populations of *E. coli* are genetically diverse, therefore making the library generation even more important to the results of the study.

The next factor for consideration regarding ribotyping is the temporal and geographical stability of the library and, hence, the bacterial population comprising it. When a ribotype library is generated, the amount of time elapsed in which the samples were collected may factor into the outcome. In this study, samples were taken over a year-long period, hoping to account for seasonal, and possibly temporal, variation. Unfortunately, not enough isolates were successfully processed to determine the outcome of this step. However, several studies have reported that many ribotype patterns are temporary not resident (found repeatedly in isolates). Of 240 ribotypes, Jenkins et al. (2003) found that 91.7% were transient. In their study, transient was defined as observation of a ribotype pattern only once. This factor is a problem with the long time-period needed to form a representative ribotype library.

Geographical stability of the library is an important issue to be considered. One possible explanation for the pattern variability in this study was the distance from known sources to unknown sources (i.e., Sinking Creek). Although the majority of cattle and horse samples came from areas close in proximity to Sinking Creek, cat, dog and WWTP samples did not. Not enough unknown samples were processed to determine whether this study was affected by geographical variation. Hartel et al. (2002) found that ribotype diversity increased with increased distance between sources for cattle and horses, and stated that the isolates used to generate a library would ideally not be geographically separated. It was also found that ribotyping could not be used to discriminate between sources from northern, central, and southern Florida (i.e., broad geographic region; Scott et al. 2003). Temporal and geographical stability are important issues to ribotyping because these factors may dictate whether a library can be regional or must be watershed specific. If each watershed has to have its own library, ribotyping may not be suitable for routine use.

The final problem with the ribotyping process is the highly technical nature of the method and lack of standardization. This method demands much time and labor, and well-trained technicians because no standard procedure is available. Technical problems were present in this study, and many steps had to be repeated to resolve these issues. Some of the technical issues included restriction enzyme digestion problems (Figure 15), DNA degradation (Figure 18), hybridization/detection problems (Figure 20), and method optimization (Figures 16 and 18). Simpson et al. (2002) reported that ribotyping is a complex procedure requiring many steps to reach an outcome. Standardization of the

method is a solution to this problem, but there is still significant variation in the methods currently used.

Statistical analysis of ribotype data would be the easiest part of the method to standardize. Although not determined in this study, the selection of the statistical analysis can define the outcome. When Lasalde et al. (2005) used cluster analysis (CA) to discriminate between sources, it was unsuccessful. However, when the same data set was analyzed using discriminant analysis (DA), the samples were successfully grouped by source. Discriminant analysis seems to have become the method of choice for source tracking because it maximizes between-source variability (Lasalde et al. 2005). Although there are available analyses that allow for discrimination between sources, the criteria for selection of statistical analyses needs to be standardized to avoid biased results based on comparison methodology.

Ribotyping is based on the assumption that different animal species have sections of DNA that encode rRNA located in different regions of their chromosomal DNA. Once the DNA is cut with restriction enzyme(s), these differences become apparent as a characteristic band pattern, based on copy number and location of the rRNA region. Because the method is DNA based, it is assumed to be more stable and reproducible. Although previous research has deemed this method successful overall, the results of this study were not conclusive. Ribotyping is expensive, time consuming, highly technical (not standardized), and can be manipulated in several ways to alter results. Many watershed monitoring agencies expect to get rapid, cheap, easy results regarding water quality. Ribotyping, however, would not meet these requirements. Local laboratories would have to be well-funded and devote many man hours to collecting library isolates,

training technicians, processing samples, and interpreting results. Although there are some exceptions, most local labs are not equipped for that type of investment, either cost or labor.

This study has demonstrated the challenges that must be overcome to make ARA and ribotyping applicable for routine use. Both ARA and ribotyping require a large investment of time and labor not only to perform the methods but to collect a sufficient number of library isolates. The steps that can be standardized for these methods must become so to decrease the amount of time needed to perform the techniques, therefore making them more applicable for routine use. Also, the ability of the researcher to manipulate multiple aspects of both of these techniques to improve the outcome does not bode well for the robustness of these methods. Finally, technical difficulties, especially regarding the ribotyping process, have been demonstrated. The goal of this project was to determine if ARA and ribotyping could be used in a specific watershed, on a small scale, to discriminate between sources of fecal pollution. Although the data collected throughout this study could not be considered conclusive, it was clear that there are multiple problems that make it difficult to use the methods and that need to be resolved if these source tracking techniques are to become standard protocol.

CHAPTER 6

RECOMMENDATIONS

It is recommended that continued efforts be made to determine the sources of fecal pollution in Sinking Creek. Although the established TMDL, BMPs, and monitoring of water quality parameters in Sinking Creek are important to preserve and improve the watershed, source determination could better focus these efforts. The results of this research were inconclusive, but alternative source tracking techniques could be tested in the future. Much effort would have to be put forth to optimize a genotypic method for routine use in the East Tennessee State University Environmental Health Sciences Lab. However, the use of antibiotic resistance analysis could possibly be improved by increasing the size of the current database. This method is one that could be made routine if enough technicians were available.

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APPENDICES

APPENDIX A

ADDITIONAL FIGURES

Before beginning the ribotyping process, a randomly-primed cDNA probe had to be generated, labeled using the DIG system, and its DNA concentration determined. The cDNA probe was made using a standard operating procedure from Dr. Troy Scott. The probe was labeled and the labeling efficiency was tested using the DIG High Prime DNA Labeling and Detection Starter Kit I for colorimetric detection (Roche, Indianapolis, IN).

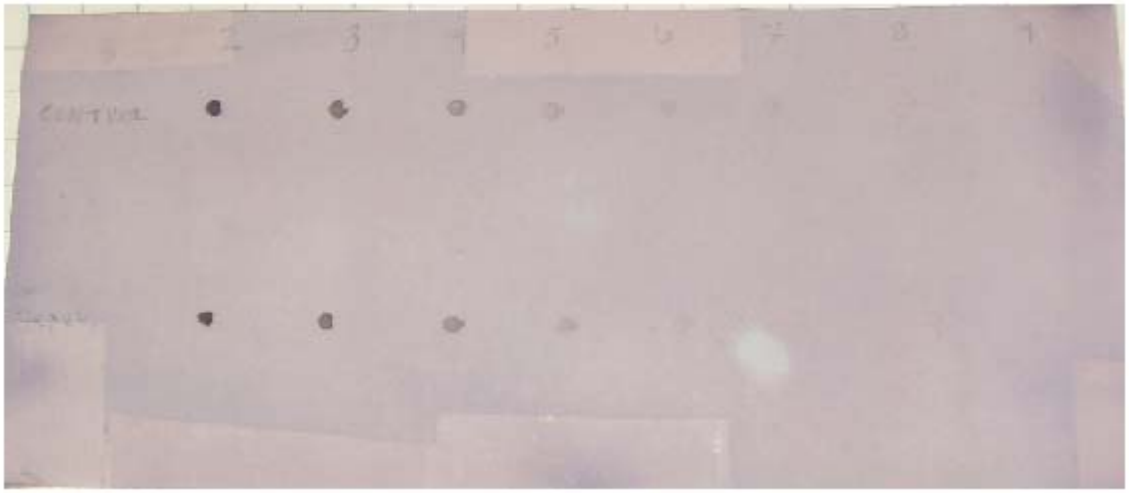


Figure 21 Dot Blot I: cDNA probe labeled with DIG system was spotted along with control DNA to determine the concentration of the generated probe. Dots were highest concentration (column 2) to lowest concentration (column 9). DNA concentrations were approximately equivalent in this example (1 ng/µl).

The cDNA probe can only be used several times for hybridization, so more probe had to be made throughout the process. Again, the labeling efficiency was checked using a dilution series of test DNA and control DNA to determine the concentration of the generated cDNA probe. Figure 22 shows dot blot II with three aliquots of probe being tested.

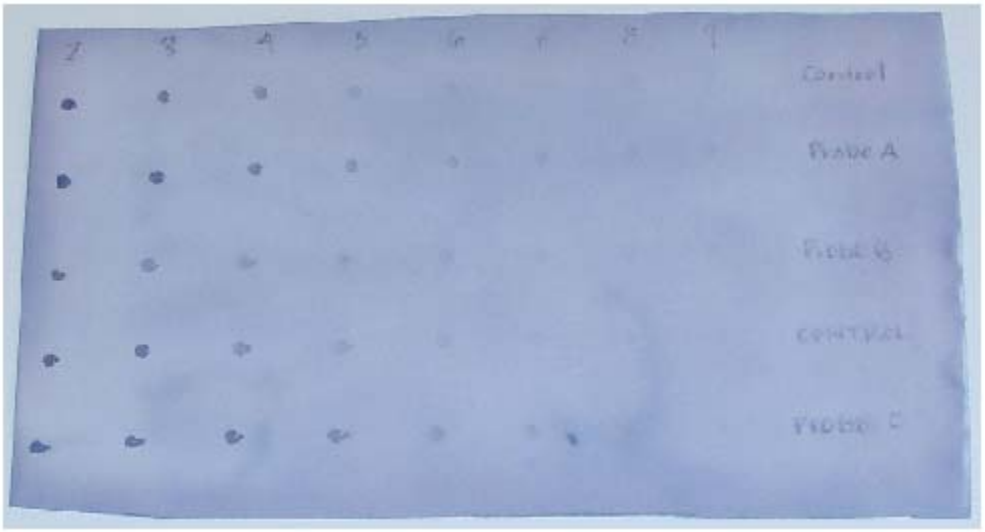
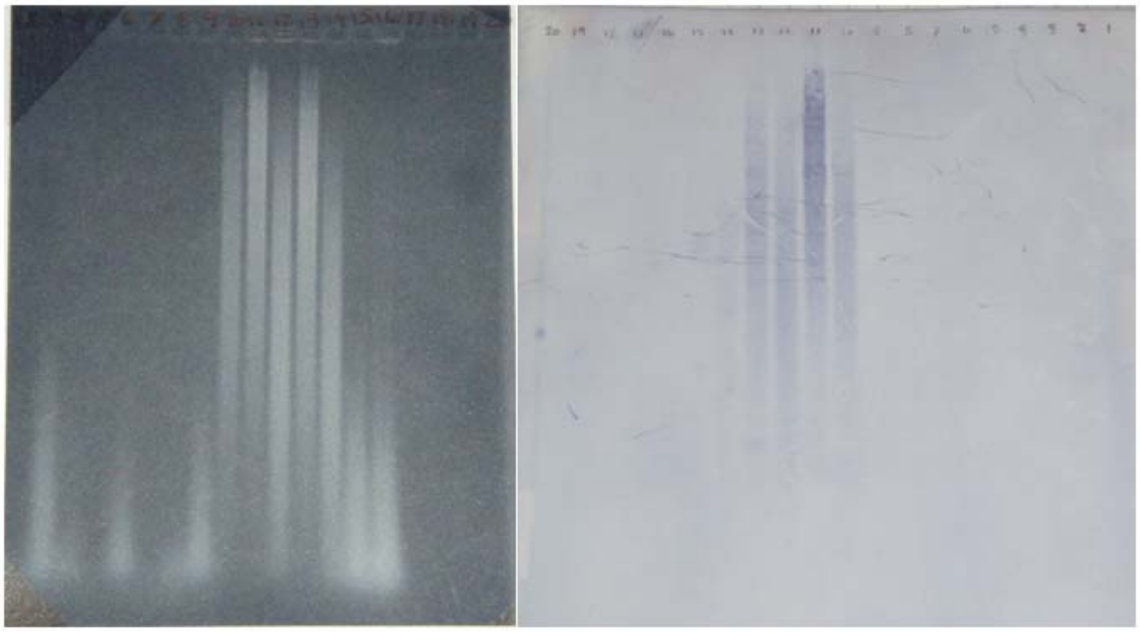
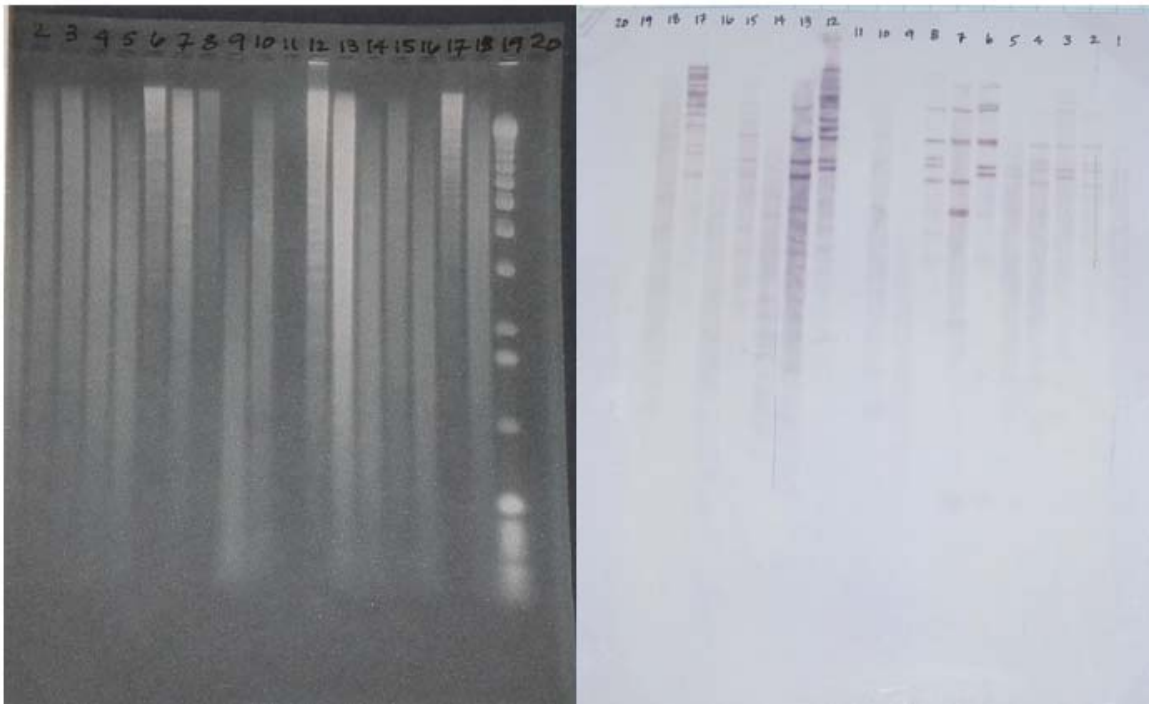


Figure 22 Dot Blot II: cDNA probe labeled with DIG system is spotted along with control DNA to determine the concentration of the generated probe. Dots are highest concentration (column 2) to lowest concentration (column 9). DNA concentrations were approximately equivalent in this example (1 ng/µl).



Lane	Isolate	Source	Amount (µg)	Test/Control
1	2103032706	cow	5	test
2	1602032706	cow	5	test
3	0316032706	cow	5	test
4	0113090506	cat	5	test
5	0102090506	cat	5	test
6	0606090506	dog	5	test
7	0706090506	dog	5	test
8	0707090506	dog	5	test
9	0102110306	wwtp	5	test
10	0104110306	wwtp	5	test
11	0106110306	wwtp	5	test
12	0107110306	wwtp	5	test
13	0201110306	wwtp	5	test
14	0611110306	wwtp	5	test
15	0614110306	wwtp	5	test
16	0615110306	wwtp	5	test

Figure 23 Large Scale Ribotype II. Second large gel processed with all test samples. Five isolates show clear digestion on the gel and 4 isolates show band patterns on the membrane. Lanes 10-13 that contained successful band patterns were WWTP samples. Membrane lanes are in the opposite order from the gel lanes because the gel was blotted face down onto the membrane.



Lane	Isolate	Source	Amount (µg)	Test/Control
1	0204032706	cow	5	test
2	0205032706	cow	5	test
3	0307032706	cow	5	test
4	0308032706	cow	5	test
5	0310032706	cow	5	test
6	1201032706	cow	5	test
7	1205032706	cow	5	test
8	0701121205	creek	5	test
9	1001121205	creek	5	test
10	1201121205	creek	5	test
11	1301121205	creek	5	test
12	0201021406	creek	5	test
13	0901021406	creek	5	test
14	0301051706	creek	5	test
15	0903051706	creek	5	test
16	1004051706	creek	5	test
17	1002081606	creek	5	test
18	1203081606	creek	5	test
19	Ladder	-----	5	control

Figure 24 Repeat of Figure 20 Samples. The "swirl" pattern present on the membrane in figure 20 indicated there was still a problem with some step of the process. Isolates that created band patterns on the membrane in Figure 20 were processed again, with additional unknown isolates. Digestion was successful for 17 of the isolates, and the "swirl" pattern was resolved.

APPENDIX B

RAW DATA

Table 13 Data from ARA Plate Number 1. The isolate column contains the identification number for each isolate processed. 101032706 means that isolate came from sample 1 and was the first isolate. The final 6 numbers are the date that sample was collected (i.e., March 27, 2006 = 032706). The antibiotic column contains the antibiotic and concentration used, in μg/ml. Vancomycin was represented by VAN, erythromycin was ERY, streptomycin was STR, oxytetracycline hydrochloride was OTC, and chlortetracycline hydrochloride was CTC. The growth of each isolate was scored as a 0, 1, or 2 in the score column. This was later converted to binary code, using only 0 or 1 (scores of 2 would become 1). The source column displays the origin of the samples. The location column indicated where the samples were from. Horse and cow samples were from S.C. (Sinking Creek). Cat and dog samples were from laboratory personnel with pets. WWTP sample locations were recorded based on what treatment plant they came from.

Isolate	Antibiotic	Score	Source	Location
101032706	VAN 1	2	cow	S.C.
101032706	VAN 3	2	cow	S.C.
101032706	VAN 5	0	cow	S.C.
101032706	VAN 10	0	cow	S.C.
101032706	ERY 1	1	cow	S.C.
101032706	ERY 3	0	cow	S.C.
101032706	ERY 5	0	cow	S.C.
101032706	ERY 10	0	cow	S.C.
101032706	STR 20	0	cow	S.C.
101032706	STR 40	0	cow	S.C.
101032706	STR 60	0	cow	S.C.
101032706	STR 80	0	cow	S.C.
101032706	OTC 20	0	cow	S.C.
101032706	OTC 40	0	cow	S.C.
101032706	OTC 60	0	cow	S.C.
101032706	OTC 80	0	cow	S.C.
101032706	CTC 20	0	cow	S.C.
101032706	CTC 40	0	cow	S.C.
101032706	CTC 60	0	cow	S.C.
101032706	CTC 80	0	cow	S.C.
102032706	VAN 1	2	cow	S.C.
102032706	VAN 3	2	cow	S.C.
102032706	VAN 5	0	cow	S.C.
102032706	VAN 10	0	cow	S.C.
102032706	ERY 1	0	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
102032706	ERY 3	0	cow	S.C.
102032706	ERY 5	0	cow	S.C.
102032706	ERY 10	0	cow	S.C.
102032706	STR 20	0	cow	S.C.
102032706	STR 40	0	cow	S.C.
102032706	STR 60	0	cow	S.C.
102032706	STR 80	0	cow	S.C.
102032706	OTC 20	0	cow	S.C.
102032706	OTC 40	0	cow	S.C.
102032706	OTC 60	0	cow	S.C.
102032706	OTC 80	0	cow	S.C.
102032706	CTC 20	0	cow	S.C.
102032706	CTC 40	0	cow	S.C.
102032706	CTC 60	0	cow	S.C.
102032706	CTC 80	0	cow	S.C.
103032706	VAN 1	0	cow	S.C.
103032706	VAN 3	0	cow	S.C.
103032706	VAN 5	0	cow	S.C.
103032706	VAN 10	0	cow	S.C.
103032706	ERY 1	0	cow	S.C.
103032706	ERY 3	0	cow	S.C.
103032706	ERY 5	0	cow	S.C.
103032706	ERY 10	0	cow	S.C.
103032706	STR 20	2	cow	S.C.
103032706	STR 40	0	cow	S.C.
103032706	STR 60	0	cow	S.C.
103032706	STR 80	0	cow	S.C.
103032706	OTC 20	0	cow	S.C.
103032706	OTC 40	0	cow	S.C.
103032706	OTC 60	0	cow	S.C.
103032706	OTC 80	0	cow	S.C.
103032706	CTC 20	0	cow	S.C.
103032706	CTC 40	0	cow	S.C.
103032706	CTC 60	0	cow	S.C.
103032706	CTC 80	0	cow	S.C.
201032706	VAN 1	0	cow	S.C.
201032706	VAN 3	0	cow	S.C.
201032706	VAN 5	0	cow	S.C.
201032706	VAN 10	0	cow	S.C.
201032706	ERY 1	0	cow	S.C.
201032706	ERY 3	0	cow	S.C.
201032706	ERY 5	0	cow	S.C.
201032706	ERY 10	0	cow	S.C.
201032706	STR 20	2	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
201032706	STR 40	0	cow	S.C.
201032706	STR 60	0	cow	S.C.
201032706	STR 80	0	cow	S.C.
201032706	OTC 20	0	cow	S.C.
201032706	OTC 40	0	cow	S.C.
201032706	OTC 60	0	cow	S.C.
201032706	OTC 80	0	cow	S.C.
201032706	CTC 20	0	cow	S.C.
201032706	CTC 40	0	cow	S.C.
201032706	CTC 60	0	cow	S.C.
201032706	CTC 80	0	cow	S.C.
202032706	VAN 1	0	cow	S.C.
202032706	VAN 3	0	cow	S.C.
202032706	VAN 5	0	cow	S.C.
202032706	VAN 10	0	cow	S.C.
202032706	ERY 1	0	cow	S.C.
202032706	ERY 3	0	cow	S.C.
202032706	ERY 5	0	cow	S.C.
202032706	ERY 10	0	cow	S.C.
202032706	STR 20	2	cow	S.C.
202032706	STR 40	0	cow	S.C.
202032706	STR 60	0	cow	S.C.
202032706	STR 80	0	cow	S.C.
202032706	OTC 20	0	cow	S.C.
202032706	OTC 40	0	cow	S.C.
202032706	OTC 60	0	cow	S.C.
202032706	OTC 80	0	cow	S.C.
202032706	CTC 20	0	cow	S.C.
202032706	CTC 40	0	cow	S.C.
202032706	CTC 60	0	cow	S.C.
202032706	CTC 80	0	cow	S.C.
203032706	VAN 1	0	cow	S.C.
203032706	VAN 3	0	cow	S.C.
203032706	VAN 5	0	cow	S.C.
203032706	VAN 10	0	cow	S.C.
203032706	ERY 1	0	cow	S.C.
203032706	ERY 3	0	cow	S.C.
203032706	ERY 5	0	cow	S.C.
203032706	ERY 10	0	cow	S.C.
203032706	STR 20	2	cow	S.C.
203032706	STR 40	0	cow	S.C.
203032706	STR 60	0	cow	S.C.
203032706	STR 80	0	cow	S.C.
203032706	OTC 20	0	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
203032706	OTC 40	0	cow	S.C.
203032706	OTC 60	0	cow	S.C.
203032706	OTC 80	0	cow	S.C.
203032706	CTC 20	0	cow	S.C.
203032706	CTC 40	0	cow	S.C.
203032706	CTC 60	0	cow	S.C.
203032706	CTC 80	0	cow	S.C.
204032706	VAN 1	0	cow	S.C.
204032706	VAN 3	0	cow	S.C.
204032706	VAN 5	0	cow	S.C.
204032706	VAN 10	0	cow	S.C.
204032706	ERY 1	0	cow	S.C.
204032706	ERY 3	0	cow	S.C.
204032706	ERY 5	0	cow	S.C.
204032706	ERY 10	0	cow	S.C.
204032706	STR 20	2	cow	S.C.
204032706	STR 40	0	cow	S.C.
204032706	STR 60	0	cow	S.C.
204032706	STR 80	0	cow	S.C.
204032706	OTC 20	0	cow	S.C.
204032706	OTC 40	0	cow	S.C.
204032706	OTC 60	0	cow	S.C.
204032706	OTC 80	0	cow	S.C.
204032706	CTC 20	0	cow	S.C.
204032706	CTC 40	0	cow	S.C.
204032706	CTC 60	0	cow	S.C.
204032706	CTC 80	0	cow	S.C.
302032706	VAN 1	2	cow	S.C.
302032706	VAN 3	2	cow	S.C.
302032706	VAN 5	0	cow	S.C.
302032706	VAN 10	0	cow	S.C.
302032706	ERY 1	2	cow	S.C.
302032706	ERY 3	1	cow	S.C.
302032706	ERY 5	0	cow	S.C.
302032706	ERY 10	0	cow	S.C.
302032706	STR 20	0	cow	S.C.
302032706	STR 40	0	cow	S.C.
302032706	STR 60	0	cow	S.C.
302032706	STR 80	0	cow	S.C.
302032706	OTC 20	0	cow	S.C.
302032706	OTC 40	0	cow	S.C.
302032706	OTC 60	0	cow	S.C.
302032706	OTC 80	0	cow	S.C.
302032706	CTC 20	0	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
302032706	CTC 40	0	cow	S.C.
302032706	CTC 60	0	cow	S.C.
302032706	CTC 80	0	cow	S.C.
303032706	VAN 1	2	cow	S.C.
303032706	VAN 3	2	cow	S.C.
303032706	VAN 5	0	cow	S.C.
303032706	VAN 10	0	cow	S.C.
303032706	ERY 1	2	cow	S.C.
303032706	ERY 3	1	cow	S.C.
303032706	ERY 5	0	cow	S.C.
303032706	ERY 10	0	cow	S.C.
303032706	STR 20	1	cow	S.C.
303032706	STR 40	0	cow	S.C.
303032706	STR 60	0	cow	S.C.
303032706	STR 80	0	cow	S.C.
303032706	OTC 20	0	cow	S.C.
303032706	OTC 40	0	cow	S.C.
303032706	OTC 60	0	cow	S.C.
303032706	OTC 80	0	cow	S.C.
303032706	CTC 20	0	cow	S.C.
303032706	CTC 40	0	cow	S.C.
303032706	CTC 60	0	cow	S.C.
303032706	CTC 80	0	cow	S.C.
304032706	VAN 1	2	cow	S.C.
304032706	VAN 3	2	cow	S.C.
304032706	VAN 5	0	cow	S.C.
304032706	VAN 10	0	cow	S.C.
304032706	ERY 1	2	cow	S.C.
304032706	ERY 3	1	cow	S.C.
304032706	ERY 5	0	cow	S.C.
304032706	ERY 10	0	cow	S.C.
304032706	STR 20	1	cow	S.C.
304032706	STR 40	0	cow	S.C.
304032706	STR 60	0	cow	S.C.
304032706	STR 80	0	cow	S.C.
304032706	OTC 20	0	cow	S.C.
304032706	OTC 40	0	cow	S.C.
304032706	OTC 60	0	cow	S.C.
304032706	OTC 80	0	cow	S.C.
304032706	CTC 20	0	cow	S.C.
304032706	CTC 40	0	cow	S.C.
304032706	CTC 60	0	cow	S.C.
304032706	CTC 80	0	cow	S.C.
401032706	VAN 1	0	horse	S.C.

Isolate	Antibiotic	Score	Source	Location
401032706	VAN 3	0	horse	S.C.
401032706	VAN 5	0	horse	S.C.
401032706	VAN 10	0	horse	S.C.
401032706	ERY 1	0	horse	S.C.
401032706	ERY 3	0	horse	S.C.
401032706	ERY 5	0	horse	S.C.
401032706	ERY 10	0	horse	S.C.
401032706	STR 20	1	horse	S.C.
401032706	STR 40	0	horse	S.C.
401032706	STR 60	0	horse	S.C.
401032706	STR 80	0	horse	S.C.
401032706	OTC 20	0	horse	S.C.
401032706	OTC 40	0	horse	S.C.
401032706	OTC 60	0	horse	S.C.
401032706	OTC 80	0	horse	S.C.
401032706	CTC 20	0	horse	S.C.
401032706	CTC 40	0	horse	S.C.
401032706	CTC 60	0	horse	S.C.
401032706	CTC 80	0	horse	S.C.
402032706	VAN 1	0	horse	S.C.
402032706	VAN 3	0	horse	S.C.
402032706	VAN 5	0	horse	S.C.
402032706	VAN 10	0	horse	S.C.
402032706	ERY 1	0	horse	S.C.
402032706	ERY 3	0	horse	S.C.
402032706	ERY 5	0	horse	S.C.
402032706	ERY 10	0	horse	S.C.
402032706	STR 20	2	horse	S.C.
402032706	STR 40	0	horse	S.C.
402032706	STR 60	0	horse	S.C.
402032706	STR 80	0	horse	S.C.
402032706	OTC 20	2	horse	S.C.
402032706	OTC 40	2	horse	S.C.
402032706	OTC 60	2	horse	S.C.
402032706	OTC 80	1	horse	S.C.
402032706	CTC 20	2	horse	S.C.
402032706	CTC 40	1	horse	S.C.
402032706	CTC 60	2	horse	S.C.
402032706	CTC 80	0	horse	S.C.
403032706	VAN 1	0	horse	S.C.
403032706	VAN 3	0	horse	S.C.
403032706	VAN 5	0	horse	S.C.
403032706	VAN 10	0	horse	S.C.
403032706	ERY 1	2	horse	S.C.

Isolate	Antibiotic	Score	Source	Location
403032706	ERY 3	2	horse	S.C.
403032706	ERY 5	0	horse	S.C.
403032706	ERY 10	0	horse	S.C.
403032706	STR 20	2	horse	S.C.
403032706	STR 40	0	horse	S.C.
403032706	STR 60	0	horse	S.C.
403032706	STR 80	0	horse	S.C.
403032706	OTC 20	2	horse	S.C.
403032706	OTC 40	0	horse	S.C.
403032706	OTC 60	0	horse	S.C.
403032706	OTC 80	0	horse	S.C.
403032706	CTC 20	0	horse	S.C.
403032706	CTC 40	0	horse	S.C.
403032706	CTC 60	0	horse	S.C.
403032706	CTC 80	0	horse	S.C.
404032706	VAN 1	0	horse	S.C.
404032706	VAN 3	0	horse	S.C.
404032706	VAN 5	0	horse	S.C.
404032706	VAN 10	0	horse	S.C.
404032706	ERY 1	2	horse	S.C.
404032706	ERY 3	2	horse	S.C.
404032706	ERY 5	0	horse	S.C.
404032706	ERY 10	0	horse	S.C.
404032706	STR 20	2	horse	S.C.
404032706	STR 40	0	horse	S.C.
404032706	STR 60	0	horse	S.C.
404032706	STR 80	0	horse	S.C.
404032706	OTC 20	0	horse	S.C.
404032706	OTC 40	0	horse	S.C.
404032706	OTC 60	0	horse	S.C.
404032706	OTC 80	0	horse	S.C.
404032706	CTC 20	0	horse	S.C.
404032706	CTC 40	0	horse	S.C.
404032706	CTC 60	0	horse	S.C.
404032706	CTC 80	0	horse	S.C.
501032706	VAN 1	0	horse	S.C.
501032706	VAN 3	0	horse	S.C.
501032706	VAN 5	0	horse	S.C.
501032706	VAN 10	0	horse	S.C.
501032706	ERY 1	0	horse	S.C.
501032706	ERY 3	0	horse	S.C.
501032706	ERY 5	0	horse	S.C.
501032706	ERY 10	0	horse	S.C.
501032706	STR 20	2	horse	S.C.

Isolate	Antibiotic	Score	Source	Location
501032706	STR 40	0	horse	S.C.
501032706	STR 60	0	horse	S.C.
501032706	STR 80	0	horse	S.C.
501032706	OTC 20	2	horse	S.C.
501032706	OTC 40	2	horse	S.C.
501032706	OTC 60	2	horse	S.C.
501032706	OTC 80	1	horse	S.C.
501032706	CTC 20	2	horse	S.C.
501032706	CTC 40	1	horse	S.C.
501032706	CTC 60	2	horse	S.C.
501032706	CTC 80	0	horse	S.C.
502032706	VAN 1	0	horse	S.C.
502032706	VAN 3	0	horse	S.C.
502032706	VAN 5	0	horse	S.C.
502032706	VAN 10	0	horse	S.C.
502032706	ERY 1	2	horse	S.C.
502032706	ERY 3	2	horse	S.C.
502032706	ERY 5	0	horse	S.C.
502032706	ERY 10	0	horse	S.C.
502032706	STR 20	2	horse	S.C.
502032706	STR 40	0	horse	S.C.
502032706	STR 60	0	horse	S.C.
502032706	STR 80	0	horse	S.C.
502032706	OTC 20	2	horse	S.C.
502032706	OTC 40	0	horse	S.C.
502032706	OTC 60	0	horse	S.C.
502032706	OTC 80	0	horse	S.C.
502032706	CTC 20	0	horse	S.C.
502032706	CTC 40	0	horse	S.C.
502032706	CTC 60	0	horse	S.C.
502032706	CTC 80	0	horse	S.C.
503032706	VAN 1	0	horse	S.C.
503032706	VAN 3	0	horse	S.C.
503032706	VAN 5	0	horse	S.C.
503032706	VAN 10	0	horse	S.C.
503032706	ERY 1	0	horse	S.C.
503032706	ERY 3	0	horse	S.C.
503032706	ERY 5	0	horse	S.C.
503032706	ERY 10	0	horse	S.C.
503032706	STR 20	1	horse	S.C.
503032706	STR 40	0	horse	S.C.
503032706	STR 60	0	horse	S.C.
503032706	STR 80	0	horse	S.C.
503032706	OTC 20	0	horse	S.C.

Isolate	Antibiotic	Score	Source	Location
503032706	OTC 40	0	horse	S.C.
503032706	OTC 60	0	horse	S.C.
503032706	OTC 80	0	horse	S.C.
503032706	CTC 20	0	horse	S.C.
503032706	CTC 40	0	horse	S.C.
503032706	CTC 60	0	horse	S.C.
503032706	CTC 80	0	horse	S.C.
504032706	VAN 1	0	horse	S.C.
504032706	VAN 3	0	horse	S.C.
504032706	VAN 5	0	horse	S.C.
504032706	VAN 10	0	horse	S.C.
504032706	ERY 1	2	horse	S.C.
504032706	ERY 3	2	horse	S.C.
504032706	ERY 5	1	horse	S.C.
504032706	ERY 10	0	horse	S.C.
504032706	STR 20	0	horse	S.C.
504032706	STR 40	0	horse	S.C.
504032706	STR 60	0	horse	S.C.
504032706	STR 80	0	horse	S.C.
504032706	OTC 20	0	horse	S.C.
504032706	OTC 40	0	horse	S.C.
504032706	OTC 60	0	horse	S.C.
504032706	OTC 80	0	horse	S.C.
504032706	CTC 20	0	horse	S.C.
504032706	CTC 40	0	horse	S.C.
504032706	CTC 60	0	horse	S.C.
504032706	CTC 80	0	horse	S.C.
601032706	VAN 1	0	horse	S.C.
601032706	VAN 3	0	horse	S.C.
601032706	VAN 5	0	horse	S.C.
601032706	VAN 10	0	horse	S.C.
601032706	ERY 1	0	horse	S.C.
601032706	ERY 3	0	horse	S.C.
601032706	ERY 5	0	horse	S.C.
601032706	ERY 10	0	horse	S.C.
601032706	STR 20	2	horse	S.C.
601032706	STR 40	0	horse	S.C.
601032706	STR 60	0	horse	S.C.
601032706	STR 80	0	horse	S.C.
601032706	OTC 20	0	horse	S.C.
601032706	OTC 40	0	horse	S.C.
601032706	OTC 60	0	horse	S.C.
601032706	OTC 80	0	horse	S.C.
601032706	CTC 20	0	horse	S.C.

Isolate	Antibiotic	Score	Source	Location
601032706	CTC 40	0	horse	S.C.
601032706	CTC 60	0	horse	S.C.
601032706	CTC 80	0	horse	S.C.
602032706	VAN 1	0	horse	S.C.
602032706	VAN 3	0	horse	S.C.
602032706	VAN 5	0	horse	S.C.
602032706	VAN 10	0	horse	S.C.
602032706	ERY 1	0	horse	S.C.
602032706	ERY 3	0	horse	S.C.
602032706	ERY 5	0	horse	S.C.
602032706	ERY 10	0	horse	S.C.
602032706	STR 20	1	horse	S.C.
602032706	STR 40	0	horse	S.C.
602032706	STR 60	0	horse	S.C.
602032706	STR 80	0	horse	S.C.
602032706	OTC 20	0	horse	S.C.
602032706	OTC 40	0	horse	S.C.
602032706	OTC 60	0	horse	S.C.
602032706	OTC 80	0	horse	S.C.
602032706	CTC 20	0	horse	S.C.
602032706	CTC 40	0	horse	S.C.
602032706	CTC 60	0	horse	S.C.
602032706	CTC 80	0	horse	S.C.
603032706	VAN 1	0	horse	S.C.
603032706	VAN 3	0	horse	S.C.
603032706	VAN 5	0	horse	S.C.
603032706	VAN 10	0	horse	S.C.
603032706	ERY 1	0	horse	S.C.
603032706	ERY 3	0	horse	S.C.
603032706	ERY 5	0	horse	S.C.
603032706	ERY 10	0	horse	S.C.
603032706	STR 20	2	horse	S.C.
603032706	STR 40	0	horse	S.C.
603032706	STR 60	0	horse	S.C.
603032706	STR 80	0	horse	S.C.
603032706	OTC 20	2	horse	S.C.
603032706	OTC 40	2	horse	S.C.
603032706	OTC 60	1	horse	S.C.
603032706	OTC 80	0	horse	S.C.
603032706	CTC 20	0	horse	S.C.
603032706	CTC 40	0	horse	S.C.
603032706	CTC 60	0	horse	S.C.
603032706	CTC 80	0	horse	S.C.
604032706	VAN 1	0	horse	S.C.

Isolate	Antibiotic	Score	Source	Location
604032706	VAN 3	0	horse	S.C.
604032706	VAN 5	0	horse	S.C.
604032706	VAN 10	0	horse	S.C.
604032706	ERY 1	1	horse	S.C.
604032706	ERY 3	0	horse	S.C.
604032706	ERY 5	0	horse	S.C.
604032706	ERY 10	0	horse	S.C.
604032706	STR 20	1	horse	S.C.
604032706	STR 40	0	horse	S.C.
604032706	STR 60	0	horse	S.C.
604032706	STR 80	0	horse	S.C.
604032706	OTC 20	0	horse	S.C.
604032706	OTC 40	0	horse	S.C.
604032706	OTC 60	0	horse	S.C.
604032706	OTC 80	0	horse	S.C.
604032706	CTC 20	0	horse	S.C.
604032706	CTC 40	0	horse	S.C.
604032706	CTC 60	0	horse	S.C.
604032706	CTC 80	0	horse	S.C.
701032706	VAN 1	2	cow	S.C.
701032706	VAN 3	2	cow	S.C.
701032706	VAN 5	0	cow	S.C.
701032706	VAN 10	0	cow	S.C.
701032706	ERY 1	2	cow	S.C.
701032706	ERY 3	2	cow	S.C.
701032706	ERY 5	0	cow	S.C.
701032706	ERY 10	0	cow	S.C.
701032706	STR 20	1	cow	S.C.
701032706	STR 40	0	cow	S.C.
701032706	STR 60	0	cow	S.C.
701032706	STR 80	0	cow	S.C.
701032706	OTC 20	0	cow	S.C.
701032706	OTC 40	0	cow	S.C.
701032706	OTC 60	0	cow	S.C.
701032706	OTC 80	0	cow	S.C.
701032706	CTC 20	0	cow	S.C.
701032706	CTC 40	0	cow	S.C.
701032706	CTC 60	0	cow	S.C.
701032706	CTC 80	0	cow	S.C.
702032706	VAN 1	0	cow	S.C.
702032706	VAN 3	0	cow	S.C.
702032706	VAN 5	0	cow	S.C.
702032706	VAN 10	0	cow	S.C.
702032706	ERY 1	0	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
702032706	ERY 3	0	cow	S.C.
702032706	ERY 5	0	cow	S.C.
702032706	ERY 10	0	cow	S.C.
702032706	STR 20	2	cow	S.C.
702032706	STR 40	0	cow	S.C.
702032706	STR 60	0	cow	S.C.
702032706	STR 80	0	cow	S.C.
702032706	OTC 20	2	cow	S.C.
702032706	OTC 40	2	cow	S.C.
702032706	OTC 60	2	cow	S.C.
702032706	OTC 80	2	cow	S.C.
702032706	CTC 20	2	cow	S.C.
702032706	CTC 40	2	cow	S.C.
702032706	CTC 60	2	cow	S.C.
702032706	CTC 80	2	cow	S.C.
703032706	VAN 1	0	cow	S.C.
703032706	VAN 3	0	cow	S.C.
703032706	VAN 5	0	cow	S.C.
703032706	VAN 10	0	cow	S.C.
703032706	ERY 1	0	cow	S.C.
703032706	ERY 3	0	cow	S.C.
703032706	ERY 5	0	cow	S.C.
703032706	ERY 10	0	cow	S.C.
703032706	STR 20	2	cow	S.C.
703032706	STR 40	0	cow	S.C.
703032706	STR 60	0	cow	S.C.
703032706	STR 80	0	cow	S.C.
703032706	OTC 20	2	cow	S.C.
703032706	OTC 40	2	cow	S.C.
703032706	OTC 60	2	cow	S.C.
703032706	OTC 80	2	cow	S.C.
703032706	CTC 20	2	cow	S.C.
703032706	CTC 40	2	cow	S.C.
703032706	CTC 60	2	cow	S.C.
703032706	CTC 80	2	cow	S.C.
704032706	VAN 1	0	cow	S.C.
704032706	VAN 3	0	cow	S.C.
704032706	VAN 5	0	cow	S.C.
704032706	VAN 10	0	cow	S.C.
704032706	ERY 1	0	cow	S.C.
704032706	ERY 3	0	cow	S.C.
704032706	ERY 5	0	cow	S.C.
704032706	ERY 10	0	cow	S.C.
704032706	STR 20	2	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
704032706	STR 40	0	cow	S.C.
704032706	STR 60	0	cow	S.C.
704032706	STR 80	0	cow	S.C.
704032706	OTC 20	2	cow	S.C.
704032706	OTC 40	2	cow	S.C.
704032706	OTC 60	2	cow	S.C.
704032706	OTC 80	2	cow	S.C.
704032706	CTC 20	2	cow	S.C.
704032706	CTC 40	2	cow	S.C.
704032706	CTC 60	2	cow	S.C.
704032706	CTC 80	2	cow	S.C.
802032706	VAN 1	0	cow	S.C.
802032706	VAN 3	0	cow	S.C.
802032706	VAN 5	0	cow	S.C.
802032706	VAN 10	0	cow	S.C.
802032706	ERY 1	0	cow	S.C.
802032706	ERY 3	0	cow	S.C.
802032706	ERY 5	0	cow	S.C.
802032706	ERY 10	0	cow	S.C.
802032706	STR 20	2	cow	S.C.
802032706	STR 40	0	cow	S.C.
802032706	STR 60	0	cow	S.C.
802032706	STR 80	0	cow	S.C.
802032706	OTC 20	2	cow	S.C.
802032706	OTC 40	2	cow	S.C.
802032706	OTC 60	2	cow	S.C.
802032706	OTC 80	2	cow	S.C.
802032706	CTC 20	2	cow	S.C.
802032706	CTC 40	2	cow	S.C.
802032706	CTC 60	2	cow	S.C.
802032706	CTC 80	2	cow	S.C.
803032706	VAN 1	0	cow	S.C.
803032706	VAN 3	0	cow	S.C.
803032706	VAN 5	0	cow	S.C.
803032706	VAN 10	0	cow	S.C.
803032706	ERY 1	1	cow	S.C.
803032706	ERY 3	0	cow	S.C.
803032706	ERY 5	0	cow	S.C.
803032706	ERY 10	0	cow	S.C.
803032706	STR 20	2	cow	S.C.
803032706	STR 40	0	cow	S.C.
803032706	STR 60	0	cow	S.C.
803032706	STR 80	0	cow	S.C.
803032706	OTC 20	2	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
803032706	OTC 40	2	cow	S.C.
803032706	OTC 60	2	cow	S.C.
803032706	OTC 80	2	cow	S.C.
803032706	CTC 20	2	cow	S.C.
803032706	CTC 40	2	cow	S.C.
803032706	CTC 60	2	cow	S.C.
803032706	CTC 80	2	cow	S.C.
901032706	VAN 1	0	horse	S.C.
901032706	VAN 3	0	horse	S.C.
901032706	VAN 5	0	horse	S.C.
901032706	VAN 10	0	horse	S.C.
901032706	ERY 1	1	horse	S.C.
901032706	ERY 3	0	horse	S.C.
901032706	ERY 5	0	horse	S.C.
901032706	ERY 10	0	horse	S.C.
901032706	STR 20	2	horse	S.C.
901032706	STR 40	0	horse	S.C.
901032706	STR 60	0	horse	S.C.
901032706	STR 80	0	horse	S.C.
901032706	OTC 20	0	horse	S.C.
901032706	OTC 40	0	horse	S.C.
901032706	OTC 60	0	horse	S.C.
901032706	OTC 80	0	horse	S.C.
901032706	CTC 20	0	horse	S.C.
901032706	CTC 40	0	horse	S.C.
901032706	CTC 60	0	horse	S.C.
901032706	CTC 80	0	horse	S.C.
902032706	VAN 1	0	horse	S.C.
902032706	VAN 3	0	horse	S.C.
902032706	VAN 5	0	horse	S.C.
902032706	VAN 10	0	horse	S.C.
902032706	ERY 1	1	horse	S.C.
902032706	ERY 3	0	horse	S.C.
902032706	ERY 5	0	horse	S.C.
902032706	ERY 10	0	horse	S.C.
902032706	STR 20	2	horse	S.C.
902032706	STR 40	0	horse	S.C.
902032706	STR 60	0	horse	S.C.
902032706	STR 80	0	horse	S.C.
902032706	OTC 20	2	horse	S.C.
902032706	OTC 40	2	horse	S.C.
902032706	OTC 60	2	horse	S.C.
902032706	OTC 80	1	horse	S.C.
902032706	CTC 20	2	horse	S.C.

Isolate	Antibiotic	Score	Source	Location
902032706	CTC 40	2	horse	S.C.
902032706	CTC 60	2	horse	S.C.
902032706	CTC 80	0	horse	S.C.
903032706	VAN 1	0	horse	S.C.
903032706	VAN 3	0	horse	S.C.
903032706	VAN 5	0	horse	S.C.
903032706	VAN 10	0	horse	S.C.
903032706	ERY 1	2	horse	S.C.
903032706	ERY 3	1	horse	S.C.
903032706	ERY 5	0	horse	S.C.
903032706	ERY 10	0	horse	S.C.
903032706	STR 20	2	horse	S.C.
903032706	STR 40	1	horse	S.C.
903032706	STR 60	0	horse	S.C.
903032706	STR 80	0	horse	S.C.
903032706	OTC 20	1	horse	S.C.
903032706	OTC 40	0	horse	S.C.
903032706	OTC 60	0	horse	S.C.
903032706	OTC 80	0	horse	S.C.
903032706	CTC 20	1	horse	S.C.
903032706	CTC 40	1	horse	S.C.
903032706	CTC 60	1	horse	S.C.
903032706	CTC 80	0	horse	S.C.
904032706	VAN 1	0	horse	S.C.
904032706	VAN 3	0	horse	S.C.
904032706	VAN 5	0	horse	S.C.
904032706	VAN 10	0	horse	S.C.
904032706	ERY 1	0	horse	S.C.
904032706	ERY 3	0	horse	S.C.
904032706	ERY 5	0	horse	S.C.
904032706	ERY 10	0	horse	S.C.
904032706	STR 20	2	horse	S.C.
904032706	STR 40	0	horse	S.C.
904032706	STR 60	0	horse	S.C.
904032706	STR 80	0	horse	S.C.
904032706	OTC 20	0	horse	S.C.
904032706	OTC 40	0	horse	S.C.
904032706	OTC 60	0	horse	S.C.
904032706	OTC 80	0	horse	S.C.
904032706	CTC 20	0	horse	S.C.
904032706	CTC 40	0	horse	S.C.
904032706	CTC 60	0	horse	S.C.
904032706	CTC 80	0	horse	S.C.
906032706	VAN 1	0	horse	S.C.

Isolate	Antibiotic	Score	Source	Location
906032706	VAN 3	0	horse	S.C.
906032706	VAN 5	0	horse	S.C.
906032706	VAN 10	0	horse	S.C.
906032706	ERY 1	1	horse	S.C.
906032706	ERY 3	0	horse	S.C.
906032706	ERY 5	0	horse	S.C.
906032706	ERY 10	0	horse	S.C.
906032706	STR 20	2	horse	S.C.
906032706	STR 40	2	horse	S.C.
906032706	STR 60	2	horse	S.C.
906032706	STR 80	2	horse	S.C.
906032706	OTC 20	2	horse	S.C.
906032706	OTC 40	2	horse	S.C.
906032706	OTC 60	2	horse	S.C.
906032706	OTC 80	2	horse	S.C.
906032706	CTC 20	2	horse	S.C.
906032706	CTC 40	2	horse	S.C.
906032706	CTC 60	2	horse	S.C.
906032706	CTC 80	1	horse	S.C.
907032706	VAN 1	0	horse	S.C.
907032706	VAN 3	0	horse	S.C.
907032706	VAN 5	0	horse	S.C.
907032706	VAN 10	0	horse	S.C.
907032706	ERY 1	0	horse	S.C.
907032706	ERY 3	0	horse	S.C.
907032706	ERY 5	0	horse	S.C.
907032706	ERY 10	0	horse	S.C.
907032706	STR 20	2	horse	S.C.
907032706	STR 40	0	horse	S.C.
907032706	STR 60	0	horse	S.C.
907032706	STR 80	0	horse	S.C.
907032706	OTC 20	2	horse	S.C.
907032706	OTC 40	2	horse	S.C.
907032706	OTC 60	2	horse	S.C.
907032706	OTC 80	1	horse	S.C.
907032706	CTC 20	2	horse	S.C.
907032706	CTC 40	1	horse	S.C.
907032706	CTC 60	2	horse	S.C.
907032706	CTC 80	0	horse	S.C.
1002032706	VAN 1	0	horse	S.C.
1002032706	VAN 3	0	horse	S.C.
1002032706	VAN 5	0	horse	S.C.
1002032706	VAN 10	0	horse	S.C.
1002032706	ERY 1	1	horse	S.C.

Isolate	Antibiotic	Score	Source	Location
1002032706	ERY 3	0	horse	S.C.
1002032706	ERY 5	0	horse	S.C.
1002032706	ERY 10	0	horse	S.C.
1002032706	STR 20	2	horse	S.C.
1002032706	STR 40	0	horse	S.C.
1002032706	STR 60	0	horse	S.C.
1002032706	STR 80	0	horse	S.C.
1002032706	OTC 20	0	horse	S.C.
1002032706	OTC 40	0	horse	S.C.
1002032706	OTC 60	0	horse	S.C.
1002032706	OTC 80	0	horse	S.C.
1002032706	CTC 20	0	horse	S.C.
1002032706	CTC 40	0	horse	S.C.
1002032706	CTC 60	0	horse	S.C.
1002032706	CTC 80	0	horse	S.C.
1003032706	VAN 1	0	horse	S.C.
1003032706	VAN 3	0	horse	S.C.
1003032706	VAN 5	0	horse	S.C.
1003032706	VAN 10	0	horse	S.C.
1003032706	ERY 1	1	horse	S.C.
1003032706	ERY 3	0	horse	S.C.
1003032706	ERY 5	0	horse	S.C.
1003032706	ERY 10	0	horse	S.C.
1003032706	STR 20	2	horse	S.C.
1003032706	STR 40	0	horse	S.C.
1003032706	STR 60	0	horse	S.C.
1003032706	STR 80	0	horse	S.C.
1003032706	OTC 20	0	horse	S.C.
1003032706	OTC 40	0	horse	S.C.
1003032706	OTC 60	0	horse	S.C.
1003032706	OTC 80	0	horse	S.C.
1003032706	CTC 20	0	horse	S.C.
1003032706	CTC 40	0	horse	S.C.
1003032706	CTC 60	0	horse	S.C.
1003032706	CTC 80	0	horse	S.C.
1004032706	VAN 1	0	horse	S.C.
1004032706	VAN 3	0	horse	S.C.
1004032706	VAN 5	0	horse	S.C.
1004032706	VAN 10	0	horse	S.C.
1004032706	ERY 1	2	horse	S.C.
1004032706	ERY 3	2	horse	S.C.
1004032706	ERY 5	2	horse	S.C.
1004032706	ERY 10	1	horse	S.C.
1004032706	STR 20	2	horse	S.C.

Isolate	Antibiotic	Score	Source	Location
1004032706	STR 40	0	horse	S.C.
1004032706	STR 60	0	horse	S.C.
1004032706	STR 80	0	horse	S.C.
1004032706	OTC 20	2	horse	S.C.
1004032706	OTC 40	2	horse	S.C.
1004032706	OTC 60	2	horse	S.C.
1004032706	OTC 80	2	horse	S.C.
1004032706	CTC 20	2	horse	S.C.
1004032706	CTC 40	2	horse	S.C.
1004032706	CTC 60	2	horse	S.C.
1004032706	CTC 80	2	horse	S.C.
1101032706	VAN 1	0	horse	S.C.
1101032706	VAN 3	0	horse	S.C.
1101032706	VAN 5	0	horse	S.C.
1101032706	VAN 10	0	horse	S.C.
1101032706	ERY 1	0	horse	S.C.
1101032706	ERY 3	0	horse	S.C.
1101032706	ERY 5	0	horse	S.C.
1101032706	ERY 10	0	horse	S.C.
1101032706	STR 20	2	horse	S.C.
1101032706	STR 40	1	horse	S.C.
1101032706	STR 60	0	horse	S.C.
1101032706	STR 80	0	horse	S.C.
1101032706	OTC 20	0	horse	S.C.
1101032706	OTC 40	0	horse	S.C.
1101032706	OTC 60	0	horse	S.C.
1101032706	OTC 80	0	horse	S.C.
1101032706	CTC 20	0	horse	S.C.
1101032706	CTC 40	0	horse	S.C.
1101032706	CTC 60	0	horse	S.C.
1101032706	CTC 80	0	horse	S.C.
1102032706	VAN 1	2	horse	S.C.
1102032706	VAN 3	2	horse	S.C.
1102032706	VAN 5	0	horse	S.C.
1102032706	VAN 10	0	horse	S.C.
1102032706	ERY 1	2	horse	S.C.
1102032706	ERY 3	2	horse	S.C.
1102032706	ERY 5	0	horse	S.C.
1102032706	ERY 10	0	horse	S.C.
1102032706	STR 20	0	horse	S.C.
1102032706	STR 40	0	horse	S.C.
1102032706	STR 60	0	horse	S.C.
1102032706	STR 80	0	horse	S.C.
1102032706	OTC 20	0	horse	S.C.

Isolate	Antibiotic	Score	Source	Location
1102032706	OTC 40	0	horse	S.C.
1102032706	OTC 60	0	horse	S.C.
1102032706	OTC 80	0	horse	S.C.
1102032706	CTC 20	0	horse	S.C.
1102032706	CTC 40	0	horse	S.C.
1102032706	CTC 60	0	horse	S.C.
1102032706	CTC 80	0	horse	S.C.
1103032706	VAN 1	2	horse	S.C.
1103032706	VAN 3	2	horse	S.C.
1103032706	VAN 5	0	horse	S.C.
1103032706	VAN 10	0	horse	S.C.
1103032706	ERY 1	2	horse	S.C.
1103032706	ERY 3	2	horse	S.C.
1103032706	ERY 5	0	horse	S.C.
1103032706	ERY 10	0	horse	S.C.
1103032706	STR 20	1	horse	S.C.
1103032706	STR 40	0	horse	S.C.
1103032706	STR 60	0	horse	S.C.
1103032706	STR 80	0	horse	S.C.
1103032706	OTC 20	0	horse	S.C.
1103032706	OTC 40	0	horse	S.C.
1103032706	OTC 60	0	horse	S.C.
1103032706	OTC 80	0	horse	S.C.
1103032706	CTC 20	0	horse	S.C.
1103032706	CTC 40	0	horse	S.C.
1103032706	CTC 60	0	horse	S.C.
1103032706	CTC 80	0	horse	S.C.
1104032706	VAN 1	0	horse	S.C.
1104032706	VAN 3	0	horse	S.C.
1104032706	VAN 5	0	horse	S.C.
1104032706	VAN 10	0	horse	S.C.
1104032706	ERY 1	0	horse	S.C.
1104032706	ERY 3	0	horse	S.C.
1104032706	ERY 5	0	horse	S.C.
1104032706	ERY 10	0	horse	S.C.
1104032706	STR 20	2	horse	S.C.
1104032706	STR 40	1	horse	S.C.
1104032706	STR 60	0	horse	S.C.
1104032706	STR 80	0	horse	S.C.
1104032706	OTC 20	0	horse	S.C.
1104032706	OTC 40	0	horse	S.C.
1104032706	OTC 60	0	horse	S.C.
1104032706	OTC 80	0	horse	S.C.
1104032706	CTC 20	0	horse	S.C.

Isolate	Antibiotic	Score	Source	Location
1104032706	CTC 40	0	horse	S.C.
1104032706	CTC 60	0	horse	S.C.
1104032706	CTC 80	0	horse	S.C.
1201032706	VAN 1	0	cow	S.C.
1201032706	VAN 3	0	cow	S.C.
1201032706	VAN 5	0	cow	S.C.
1201032706	VAN 10	0	cow	S.C.
1201032706	ERY 1	0	cow	S.C.
1201032706	ERY 3	0	cow	S.C.
1201032706	ERY 5	0	cow	S.C.
1201032706	ERY 10	0	cow	S.C.
1201032706	STR 20	2	cow	S.C.
1201032706	STR 40	1	cow	S.C.
1201032706	STR 60	0	cow	S.C.
1201032706	STR 80	0	cow	S.C.
1201032706	OTC 20	0	cow	S.C.
1201032706	OTC 40	0	cow	S.C.
1201032706	OTC 60	0	cow	S.C.
1201032706	OTC 80	0	cow	S.C.
1201032706	CTC 20	0	cow	S.C.
1201032706	CTC 40	0	cow	S.C.
1201032706	CTC 60	0	cow	S.C.
1201032706	CTC 80	0	cow	S.C.
1202032706	VAN 1	0	cow	S.C.
1202032706	VAN 3	0	cow	S.C.
1202032706	VAN 5	0	cow	S.C.
1202032706	VAN 10	0	cow	S.C.
1202032706	ERY 1	0	cow	S.C.
1202032706	ERY 3	0	cow	S.C.
1202032706	ERY 5	0	cow	S.C.
1202032706	ERY 10	0	cow	S.C.
1202032706	STR 20	2	cow	S.C.
1202032706	STR 40	1	cow	S.C.
1202032706	STR 60	0	cow	S.C.
1202032706	STR 80	0	cow	S.C.
1202032706	OTC 20	1	cow	S.C.
1202032706	OTC 40	0	cow	S.C.
1202032706	OTC 60	0	cow	S.C.
1202032706	OTC 80	0	cow	S.C.
1202032706	CTC 20	1	cow	S.C.
1202032706	CTC 40	1	cow	S.C.
1202032706	CTC 60	1	cow	S.C.
1202032706	CTC 80	0	cow	S.C.
1203032706	VAN 1	0	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
1203032706	VAN 3	0	cow	S.C.
1203032706	VAN 5	0	cow	S.C.
1203032706	VAN 10	0	cow	S.C.
1203032706	ERY 1	0	cow	S.C.
1203032706	ERY 3	0	cow	S.C.
1203032706	ERY 5	0	cow	S.C.
1203032706	ERY 10	0	cow	S.C.
1203032706	STR 20	2	cow	S.C.
1203032706	STR 40	1	cow	S.C.
1203032706	STR 60	0	cow	S.C.
1203032706	STR 80	0	cow	S.C.
1203032706	OTC 20	1	cow	S.C.
1203032706	OTC 40	0	cow	S.C.
1203032706	OTC 60	0	cow	S.C.
1203032706	OTC 80	0	cow	S.C.
1203032706	CTC 20	0	cow	S.C.
1203032706	CTC 40	0	cow	S.C.
1203032706	CTC 60	1	cow	S.C.
1203032706	CTC 80	0	cow	S.C.
1204032706	VAN 1	0	cow	S.C.
1204032706	VAN 3	0	cow	S.C.
1204032706	VAN 5	0	cow	S.C.
1204032706	VAN 10	0	cow	S.C.
1204032706	ERY 1	0	cow	S.C.
1204032706	ERY 3	0	cow	S.C.
1204032706	ERY 5	0	cow	S.C.
1204032706	ERY 10	0	cow	S.C.
1204032706	STR 20	2	cow	S.C.
1204032706	STR 40	1	cow	S.C.
1204032706	STR 60	0	cow	S.C.
1204032706	STR 80	0	cow	S.C.
1204032706	OTC 20	0	cow	S.C.
1204032706	OTC 40	0	cow	S.C.
1204032706	OTC 60	0	cow	S.C.
1204032706	OTC 80	0	cow	S.C.
1204032706	CTC 20	0	cow	S.C.
1204032706	CTC 40	0	cow	S.C.
1204032706	CTC 60	0	cow	S.C.
1204032706	CTC 80	0	cow	S.C.
1302032706	VAN 1	0	cow	S.C.
1302032706	VAN 3	0	cow	S.C.
1302032706	VAN 5	0	cow	S.C.
1302032706	VAN 10	0	cow	S.C.
1302032706	ERY 1	0	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
1302032706	ERY 3	0	cow	S.C.
1302032706	ERY 5	0	cow	S.C.
1302032706	ERY 10	0	cow	S.C.
1302032706	STR 20	2	cow	S.C.
1302032706	STR 40	1	cow	S.C.
1302032706	STR 60	0	cow	S.C.
1302032706	STR 80	0	cow	S.C.
1302032706	OTC 20	0	cow	S.C.
1302032706	OTC 40	0	cow	S.C.
1302032706	OTC 60	0	cow	S.C.
1302032706	OTC 80	0	cow	S.C.
1302032706	CTC 20	0	cow	S.C.
1302032706	CTC 40	0	cow	S.C.
1302032706	CTC 60	0	cow	S.C.
1302032706	CTC 80	0	cow	S.C.
1304032706	VAN 1	0	cow	S.C.
1304032706	VAN 3	0	cow	S.C.
1304032706	VAN 5	0	cow	S.C.
1304032706	VAN 10	0	cow	S.C.
1304032706	ERY 1	0	cow	S.C.
1304032706	ERY 3	0	cow	S.C.
1304032706	ERY 5	0	cow	S.C.
1304032706	ERY 10	0	cow	S.C.
1304032706	STR 20	2	cow	S.C.
1304032706	STR 40	1	cow	S.C.
1304032706	STR 60	0	cow	S.C.
1304032706	STR 80	0	cow	S.C.
1304032706	OTC 20	2	cow	S.C.
1304032706	OTC 40	2	cow	S.C.
1304032706	OTC 60	1	cow	S.C.
1304032706	OTC 80	0	cow	S.C.
1304032706	CTC 20	1	cow	S.C.
1304032706	CTC 40	0	cow	S.C.
1304032706	CTC 60	2	cow	S.C.
1304032706	CTC 80	0	cow	S.C.
1305032706	VAN 1	0	cow	S.C.
1305032706	VAN 3	0	cow	S.C.
1305032706	VAN 5	0	cow	S.C.
1305032706	VAN 10	0	cow	S.C.
1305032706	ERY 1	0	cow	S.C.
1305032706	ERY 3	0	cow	S.C.
1305032706	ERY 5	0	cow	S.C.
1305032706	ERY 10	0	cow	S.C.
1305032706	STR 20	2	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
1305032706	STR 40	1	cow	S.C.
1305032706	STR 60	0	cow	S.C.
1305032706	STR 80	0	cow	S.C.
1305032706	OTC 20	2	cow	S.C.
1305032706	OTC 40	2	cow	S.C.
1305032706	OTC 60	1	cow	S.C.
1305032706	OTC 80	0	cow	S.C.
1305032706	CTC 20	1	cow	S.C.
1305032706	CTC 40	0	cow	S.C.
1305032706	CTC 60	1	cow	S.C.
1305032706	CTC 80	0	cow	S.C.
1401032706	VAN 1	0	cow	S.C.
1401032706	VAN 3	0	cow	S.C.
1401032706	VAN 5	0	cow	S.C.
1401032706	VAN 10	0	cow	S.C.
1401032706	ERY 1	0	cow	S.C.
1401032706	ERY 3	0	cow	S.C.
1401032706	ERY 5	0	cow	S.C.
1401032706	ERY 10	0	cow	S.C.
1401032706	STR 20	2	cow	S.C.
1401032706	STR 40	1	cow	S.C.
1401032706	STR 60	0	cow	S.C.
1401032706	STR 80	0	cow	S.C.
1401032706	OTC 20	2	cow	S.C.
1401032706	OTC 40	2	cow	S.C.
1401032706	OTC 60	1	cow	S.C.
1401032706	OTC 80	0	cow	S.C.
1401032706	CTC 20	1	cow	S.C.
1401032706	CTC 40	1	cow	S.C.
1401032706	CTC 60	2	cow	S.C.
1401032706	CTC 80	0	cow	S.C.
1402032706	VAN 1	0	cow	S.C.
1402032706	VAN 3	0	cow	S.C.
1402032706	VAN 5	0	cow	S.C.
1402032706	VAN 10	0	cow	S.C.
1402032706	ERY 1	0	cow	S.C.
1402032706	ERY 3	0	cow	S.C.
1402032706	ERY 5	0	cow	S.C.
1402032706	ERY 10	0	cow	S.C.
1402032706	STR 20	2	cow	S.C.
1402032706	STR 40	1	cow	S.C.
1402032706	STR 60	0	cow	S.C.
1402032706	STR 80	0	cow	S.C.
1402032706	OTC 20	2	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
1402032706	OTC 40	2	cow	S.C.
1402032706	OTC 60	1	cow	S.C.
1402032706	OTC 80	0	cow	S.C.
1402032706	CTC 20	1	cow	S.C.
1402032706	CTC 40	1	cow	S.C.
1402032706	CTC 60	2	cow	S.C.
1402032706	CTC 80	0	cow	S.C.
1403032706	VAN 1	1	cow	S.C.
1403032706	VAN 3	0	cow	S.C.
1403032706	VAN 5	0	cow	S.C.
1403032706	VAN 10	0	cow	S.C.
1403032706	ERY 1	0	cow	S.C.
1403032706	ERY 3	0	cow	S.C.
1403032706	ERY 5	0	cow	S.C.
1403032706	ERY 10	0	cow	S.C.
1403032706	STR 20	2	cow	S.C.
1403032706	STR 40	1	cow	S.C.
1403032706	STR 60	0	cow	S.C.
1403032706	STR 80	0	cow	S.C.
1403032706	OTC 20	2	cow	S.C.
1403032706	OTC 40	2	cow	S.C.
1403032706	OTC 60	1	cow	S.C.
1403032706	OTC 80	0	cow	S.C.
1403032706	CTC 20	1	cow	S.C.
1403032706	CTC 40	1	cow	S.C.
1403032706	CTC 60	2	cow	S.C.
1403032706	CTC 80	0	cow	S.C.
1501032706	VAN 1	2	cow	S.C.
1501032706	VAN 3	0	cow	S.C.
1501032706	VAN 5	0	cow	S.C.
1501032706	VAN 10	0	cow	S.C.
1501032706	ERY 1	0	cow	S.C.
1501032706	ERY 3	0	cow	S.C.
1501032706	ERY 5	0	cow	S.C.
1501032706	ERY 10	0	cow	S.C.
1501032706	STR 20	1	cow	S.C.
1501032706	STR 40	0	cow	S.C.
1501032706	STR 60	0	cow	S.C.
1501032706	STR 80	0	cow	S.C.
1501032706	OTC 20	1	cow	S.C.
1501032706	OTC 40	0	cow	S.C.
1501032706	OTC 60	0	cow	S.C.
1501032706	OTC 80	0	cow	S.C.
1501032706	CTC 20	0	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
1501032706	CTC 40	0	cow	S.C.
1501032706	CTC 60	0	cow	S.C.
1501032706	CTC 80	0	cow	S.C.
1503032706	VAN 1	2	cow	S.C.
1503032706	VAN 3	2	cow	S.C.
1503032706	VAN 5	0	cow	S.C.
1503032706	VAN 10	0	cow	S.C.
1503032706	ERY 1	1	cow	S.C.
1503032706	ERY 3	0	cow	S.C.
1503032706	ERY 5	0	cow	S.C.
1503032706	ERY 10	0	cow	S.C.
1503032706	STR 20	0	cow	S.C.
1503032706	STR 40	0	cow	S.C.
1503032706	STR 60	0	cow	S.C.
1503032706	STR 80	0	cow	S.C.
1503032706	OTC 20	0	cow	S.C.
1503032706	OTC 40	0	cow	S.C.
1503032706	OTC 60	0	cow	S.C.
1503032706	OTC 80	0	cow	S.C.
1503032706	CTC 20	0	cow	S.C.
1503032706	CTC 40	0	cow	S.C.
1503032706	CTC 60	0	cow	S.C.
1503032706	CTC 80	0	cow	S.C.
1504032706	VAN 1	2	cow	S.C.
1504032706	VAN 3	2	cow	S.C.
1504032706	VAN 5	0	cow	S.C.
1504032706	VAN 10	0	cow	S.C.
1504032706	ERY 1	1	cow	S.C.
1504032706	ERY 3	0	cow	S.C.
1504032706	ERY 5	0	cow	S.C.
1504032706	ERY 10	0	cow	S.C.
1504032706	STR 20	1	cow	S.C.
1504032706	STR 40	0	cow	S.C.
1504032706	STR 60	0	cow	S.C.
1504032706	STR 80	0	cow	S.C.
1504032706	OTC 20	1	cow	S.C.
1504032706	OTC 40	0	cow	S.C.
1504032706	OTC 60	0	cow	S.C.
1504032706	OTC 80	0	cow	S.C.
1504032706	CTC 20	1	cow	S.C.
1504032706	CTC 40	0	cow	S.C.
1504032706	CTC 60	1	cow	S.C.
1504032706	CTC 80	0	cow	S.C.
1505032706	VAN 1	2	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
1505032706	VAN 3	2	cow	S.C.
1505032706	VAN 5	0	cow	S.C.
1505032706	VAN 10	0	cow	S.C.
1505032706	ERY 1	1	cow	S.C.
1505032706	ERY 3	0	cow	S.C.
1505032706	ERY 5	0	cow	S.C.
1505032706	ERY 10	0	cow	S.C.
1505032706	STR 20	1	cow	S.C.
1505032706	STR 40	0	cow	S.C.
1505032706	STR 60	0	cow	S.C.
1505032706	STR 80	0	cow	S.C.
1505032706	OTC 20	1	cow	S.C.
1505032706	OTC 40	0	cow	S.C.
1505032706	OTC 60	0	cow	S.C.
1505032706	OTC 80	0	cow	S.C.
1505032706	CTC 20	1	cow	S.C.
1505032706	CTC 40	0	cow	S.C.
1505032706	CTC 60	1	cow	S.C.
1505032706	CTC 80	0	cow	S.C.
1507032706	VAN 1	0	cow	S.C.
1507032706	VAN 3	0	cow	S.C.
1507032706	VAN 5	0	cow	S.C.
1507032706	VAN 10	0	cow	S.C.
1507032706	ERY 1	0	cow	S.C.
1507032706	ERY 3	0	cow	S.C.
1507032706	ERY 5	0	cow	S.C.
1507032706	ERY 10	0	cow	S.C.
1507032706	STR 20	1	cow	S.C.
1507032706	STR 40	0	cow	S.C.
1507032706	STR 60	0	cow	S.C.
1507032706	STR 80	0	cow	S.C.
1507032706	OTC 20	1	cow	S.C.
1507032706	OTC 40	0	cow	S.C.
1507032706	OTC 60	0	cow	S.C.
1507032706	OTC 80	0	cow	S.C.
1507032706	CTC 20	1	cow	S.C.
1507032706	CTC 40	0	cow	S.C.
1507032706	CTC 60	1	cow	S.C.
1507032706	CTC 80	0	cow	S.C.
1601032706	VAN 1	0	cow	S.C.
1601032706	VAN 3	0	cow	S.C.
1601032706	VAN 5	0	cow	S.C.
1601032706	VAN 10	0	cow	S.C.
1601032706	ERY 1	0	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
1601032706	ERY 3	0	cow	S.C.
1601032706	ERY 5	0	cow	S.C.
1601032706	ERY 10	0	cow	S.C.
1601032706	STR 20	1	cow	S.C.
1601032706	STR 40	0	cow	S.C.
1601032706	STR 60	0	cow	S.C.
1601032706	STR 80	0	cow	S.C.
1601032706	OTC 20	2	cow	S.C.
1601032706	OTC 40	2	cow	S.C.
1601032706	OTC 60	1	cow	S.C.
1601032706	OTC 80	0	cow	S.C.
1601032706	CTC 20	2	cow	S.C.
1601032706	CTC 40	2	cow	S.C.
1601032706	CTC 60	2	cow	S.C.
1601032706	CTC 80	0	cow	S.C.
1602032706	VAN 1	0	cow	S.C.
1602032706	VAN 3	0	cow	S.C.
1602032706	VAN 5	0	cow	S.C.
1602032706	VAN 10	0	cow	S.C.
1602032706	ERY 1	0	cow	S.C.
1602032706	ERY 3	2	cow	S.C.
1602032706	ERY 5	0	cow	S.C.
1602032706	ERY 10	0	cow	S.C.
1602032706	STR 20	2	cow	S.C.
1602032706	STR 40	0	cow	S.C.
1602032706	STR 60	0	cow	S.C.
1602032706	STR 80	0	cow	S.C.
1602032706	OTC 20	2	cow	S.C.
1602032706	OTC 40	2	cow	S.C.
1602032706	OTC 60	1	cow	S.C.
1602032706	OTC 80	0	cow	S.C.
1602032706	CTC 20	2	cow	S.C.
1602032706	CTC 40	2	cow	S.C.
1602032706	CTC 60	2	cow	S.C.
1602032706	CTC 80	0	cow	S.C.
1606032706	VAN 1	0	cow	S.C.
1606032706	VAN 3	0	cow	S.C.
1606032706	VAN 5	0	cow	S.C.
1606032706	VAN 10	0	cow	S.C.
1606032706	ERY 1	0	cow	S.C.
1606032706	ERY 3	2	cow	S.C.
1606032706	ERY 5	0	cow	S.C.
1606032706	ERY 10	0	cow	S.C.
1606032706	STR 20	0	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
1606032706	STR 40	0	cow	S.C.
1606032706	STR 60	0	cow	S.C.
1606032706	STR 80	0	cow	S.C.
1606032706	OTC 20	0	cow	S.C.
1606032706	OTC 40	0	cow	S.C.
1606032706	OTC 60	0	cow	S.C.
1606032706	OTC 80	0	cow	S.C.
1606032706	CTC 20	0	cow	S.C.
1606032706	CTC 40	0	cow	S.C.
1606032706	CTC 60	0	cow	S.C.
1606032706	CTC 80	0	cow	S.C.
1607032706	VAN 1	0	cow	S.C.
1607032706	VAN 3	0	cow	S.C.
1607032706	VAN 5	0	cow	S.C.
1607032706	VAN 10	0	cow	S.C.
1607032706	ERY 1	0	cow	S.C.
1607032706	ERY 3	0	cow	S.C.
1607032706	ERY 5	0	cow	S.C.
1607032706	ERY 10	0	cow	S.C.
1607032706	STR 20	1	cow	S.C.
1607032706	STR 40	0	cow	S.C.
1607032706	STR 60	0	cow	S.C.
1607032706	STR 80	0	cow	S.C.
1607032706	OTC 20	0	cow	S.C.
1607032706	OTC 40	0	cow	S.C.
1607032706	OTC 60	0	cow	S.C.
1607032706	OTC 80	0	cow	S.C.
1607032706	CTC 20	0	cow	S.C.
1607032706	CTC 40	0	cow	S.C.
1607032706	CTC 60	0	cow	S.C.
1607032706	CTC 80	0	cow	S.C.
1704032706	VAN 1	0	cow	S.C.
1704032706	VAN 3	0	cow	S.C.
1704032706	VAN 5	0	cow	S.C.
1704032706	VAN 10	0	cow	S.C.
1704032706	ERY 1	0	cow	S.C.
1704032706	ERY 3	0	cow	S.C.
1704032706	ERY 5	0	cow	S.C.
1704032706	ERY 10	0	cow	S.C.
1704032706	STR 20	0	cow	S.C.
1704032706	STR 40	0	cow	S.C.
1704032706	STR 60	0	cow	S.C.
1704032706	STR 80	0	cow	S.C.
1704032706	OTC 20	0	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
1704032706	OTC 40	0	cow	S.C.
1704032706	OTC 60	0	cow	S.C.
1704032706	OTC 80	0	cow	S.C.
1704032706	CTC 20	0	cow	S.C.
1704032706	CTC 40	0	cow	S.C.
1704032706	CTC 60	0	cow	S.C.
1704032706	CTC 80	0	cow	S.C.
1706032706	VAN 1	0	cow	S.C.
1706032706	VAN 3	0	cow	S.C.
1706032706	VAN 5	0	cow	S.C.
1706032706	VAN 10	0	cow	S.C.
1706032706	ERY 1	0	cow	S.C.
1706032706	ERY 3	0	cow	S.C.
1706032706	ERY 5	0	cow	S.C.
1706032706	ERY 10	0	cow	S.C.
1706032706	STR 20	2	cow	S.C.
1706032706	STR 40	0	cow	S.C.
1706032706	STR 60	0	cow	S.C.
1706032706	STR 80	0	cow	S.C.
1706032706	OTC 20	2	cow	S.C.
1706032706	OTC 40	2	cow	S.C.
1706032706	OTC 60	1	cow	S.C.
1706032706	OTC 80	0	cow	S.C.
1706032706	CTC 20	1	cow	S.C.
1706032706	CTC 40	0	cow	S.C.
1706032706	CTC 60	1	cow	S.C.
1706032706	CTC 80	0	cow	S.C.
1707032706	VAN 1	0	cow	S.C.
1707032706	VAN 3	0	cow	S.C.
1707032706	VAN 5	0	cow	S.C.
1707032706	VAN 10	0	cow	S.C.
1707032706	ERY 1	0	cow	S.C.
1707032706	ERY 3	0	cow	S.C.
1707032706	ERY 5	0	cow	S.C.
1707032706	ERY 10	0	cow	S.C.
1707032706	STR 20	2	cow	S.C.
1707032706	STR 40	0	cow	S.C.
1707032706	STR 60	0	cow	S.C.
1707032706	STR 80	0	cow	S.C.
1707032706	OTC 20	2	cow	S.C.
1707032706	OTC 40	2	cow	S.C.
1707032706	OTC 60	1	cow	S.C.
1707032706	OTC 80	0	cow	S.C.
1707032706	CTC 20	1	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
1707032706	CTC 40	1	cow	S.C.
1707032706	CTC 60	1	cow	S.C.
1707032706	CTC 80	0	cow	S.C.
1903032706	VAN 1	2	horse	S.C.
1903032706	VAN 3	2	horse	S.C.
1903032706	VAN 5	0	horse	S.C.
1903032706	VAN 10	0	horse	S.C.
1903032706	ERY 1	2	horse	S.C.
1903032706	ERY 3	2	horse	S.C.
1903032706	ERY 5	1	horse	S.C.
1903032706	ERY 10	0	horse	S.C.
1903032706	STR 20	0	horse	S.C.
1903032706	STR 40	0	horse	S.C.
1903032706	STR 60	0	horse	S.C.
1903032706	STR 80	0	horse	S.C.
1903032706	OTC 20	0	horse	S.C.
1903032706	OTC 40	0	horse	S.C.
1903032706	OTC 60	0	horse	S.C.
1903032706	OTC 80	0	horse	S.C.
1903032706	CTC 20	0	horse	S.C.
1903032706	CTC 40	0	horse	S.C.
1903032706	CTC 60	0	horse	S.C.
1903032706	CTC 80	0	horse	S.C.
1907032706	VAN 1	2	horse	S.C.
1907032706	VAN 3	2	horse	S.C.
1907032706	VAN 5	0	horse	S.C.
1907032706	VAN 10	0	horse	S.C.
1907032706	ERY 1	1	horse	S.C.
1907032706	ERY 3	0	horse	S.C.
1907032706	ERY 5	0	horse	S.C.
1907032706	ERY 10	0	horse	S.C.
1907032706	STR 20	0	horse	S.C.
1907032706	STR 40	0	horse	S.C.
1907032706	STR 60	0	horse	S.C.
1907032706	STR 80	0	horse	S.C.
1907032706	OTC 20	0	horse	S.C.
1907032706	OTC 40	0	horse	S.C.
1907032706	OTC 60	0	horse	S.C.
1907032706	OTC 80	0	horse	S.C.
1907032706	CTC 20	0	horse	S.C.
1907032706	CTC 40	0	horse	S.C.
1907032706	CTC 60	0	horse	S.C.
1907032706	CTC 80	0	horse	S.C.
2003032706	VAN 1	2	horse	S.C.

Isolate	Antibiotic	Score	Source	Location
2003032706	VAN 3	2	horse	S.C.
2003032706	VAN 5	0	horse	S.C.
2003032706	VAN 10	0	horse	S.C.
2003032706	ERY 1	0	horse	S.C.
2003032706	ERY 3	0	horse	S.C.
2003032706	ERY 5	0	horse	S.C.
2003032706	ERY 10	0	horse	S.C.
2003032706	STR 20	1	horse	S.C.
2003032706	STR 40	0	horse	S.C.
2003032706	STR 60	0	horse	S.C.
2003032706	STR 80	0	horse	S.C.
2003032706	OTC 20	0	horse	S.C.
2003032706	OTC 40	0	horse	S.C.
2003032706	OTC 60	0	horse	S.C.
2003032706	OTC 80	0	horse	S.C.
2003032706	CTC 20	0	horse	S.C.
2003032706	CTC 40	0	horse	S.C.
2003032706	CTC 60	0	horse	S.C.
2003032706	CTC 80	0	horse	S.C.
2005032706	VAN 1	0	horse	S.C.
2005032706	VAN 3	0	horse	S.C.
2005032706	VAN 5	0	horse	S.C.
2005032706	VAN 10	0	horse	S.C.
2005032706	ERY 1	0	horse	S.C.
2005032706	ERY 3	0	horse	S.C.
2005032706	ERY 5	0	horse	S.C.
2005032706	ERY 10	0	horse	S.C.
2005032706	STR 20	2	horse	S.C.
2005032706	STR 40	1	horse	S.C.
2005032706	STR 60	0	horse	S.C.
2005032706	STR 80	0	horse	S.C.
2005032706	OTC 20	0	horse	S.C.
2005032706	OTC 40	0	horse	S.C.
2005032706	OTC 60	0	horse	S.C.
2005032706	OTC 80	0	horse	S.C.
2005032706	CTC 20	0	horse	S.C.
2005032706	CTC 40	0	horse	S.C.
2005032706	CTC 60	0	horse	S.C.
2005032706	CTC 80	0	horse	S.C.
2101032706	VAN 1	0	cow	S.C.
2101032706	VAN 3	0	cow	S.C.
2101032706	VAN 5	0	cow	S.C.
2101032706	VAN 10	0	cow	S.C.
2101032706	ERY 1	0	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
2101032706	ERY 3	0	cow	S.C.
2101032706	ERY 5	0	cow	S.C.
2101032706	ERY 10	0	cow	S.C.
2101032706	STR 20	2	cow	S.C.
2101032706	STR 40	1	cow	S.C.
2101032706	STR 60	0	cow	S.C.
2101032706	STR 80	0	cow	S.C.
2101032706	OTC 20	0	cow	S.C.
2101032706	OTC 40	0	cow	S.C.
2101032706	OTC 60	0	cow	S.C.
2101032706	OTC 80	0	cow	S.C.
2101032706	CTC 20	0	cow	S.C.
2101032706	CTC 40	0	cow	S.C.
2101032706	CTC 60	0	cow	S.C.
2101032706	CTC 80	0	cow	S.C.
2103032706	VAN 1	2	cow	S.C.
2103032706	VAN 3	0	cow	S.C.
2103032706	VAN 5	0	cow	S.C.
2103032706	VAN 10	0	cow	S.C.
2103032706	ERY 1	2	cow	S.C.
2103032706	ERY 3	2	cow	S.C.
2103032706	ERY 5	1	cow	S.C.
2103032706	ERY 10	0	cow	S.C.
2103032706	STR 20	0	cow	S.C.
2103032706	STR 40	0	cow	S.C.
2103032706	STR 60	0	cow	S.C.
2103032706	STR 80	0	cow	S.C.
2103032706	OTC 20	0	cow	S.C.
2103032706	OTC 40	0	cow	S.C.
2103032706	OTC 60	0	cow	S.C.
2103032706	OTC 80	0	cow	S.C.
2103032706	CTC 20	0	cow	S.C.
2103032706	CTC 40	0	cow	S.C.
2103032706	CTC 60	0	cow	S.C.
2103032706	CTC 80	0	cow	S.C.
2105032706	VAN 1	2	cow	S.C.
2105032706	VAN 3	0	cow	S.C.
2105032706	VAN 5	0	cow	S.C.
2105032706	VAN 10	0	cow	S.C.
2105032706	ERY 1	2	cow	S.C.
2105032706	ERY 3	2	cow	S.C.
2105032706	ERY 5	1	cow	S.C.
2105032706	ERY 10	0	cow	S.C.
2105032706	STR 20	2	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
2105032706	STR 40	0	cow	S.C.
2105032706	STR 60	0	cow	S.C.
2105032706	STR 80	0	cow	S.C.
2105032706	OTC 20	0	cow	S.C.
2105032706	OTC 40	0	cow	S.C.
2105032706	OTC 60	0	cow	S.C.
2105032706	OTC 80	0	cow	S.C.
2105032706	CTC 20	0	cow	S.C.
2105032706	CTC 40	0	cow	S.C.
2105032706	CTC 60	0	cow	S.C.
2105032706	CTC 80	0	cow	S.C.
2107032706	VAN 1	2	cow	S.C.
2107032706	VAN 3	2	cow	S.C.
2107032706	VAN 5	0	cow	S.C.
2107032706	VAN 10	0	cow	S.C.
2107032706	ERY 1	2	cow	S.C.
2107032706	ERY 3	2	cow	S.C.
2107032706	ERY 5	1	cow	S.C.
2107032706	ERY 10	0	cow	S.C.
2107032706	STR 20	0	cow	S.C.
2107032706	STR 40	0	cow	S.C.
2107032706	STR 60	0	cow	S.C.
2107032706	STR 80	0	cow	S.C.
2107032706	OTC 20	0	cow	S.C.
2107032706	OTC 40	0	cow	S.C.
2107032706	OTC 60	0	cow	S.C.
2107032706	OTC 80	0	cow	S.C.
2107032706	CTC 20	0	cow	S.C.
2107032706	CTC 40	0	cow	S.C.
2107032706	CTC 60	0	cow	S.C.
2107032706	CTC 80	0	cow	S.C.
2201032706	VAN 1	0	cow	S.C.
2201032706	VAN 3	0	cow	S.C.
2201032706	VAN 5	0	cow	S.C.
2201032706	VAN 10	0	cow	S.C.
2201032706	ERY 1	0	cow	S.C.
2201032706	ERY 3	0	cow	S.C.
2201032706	ERY 5	0	cow	S.C.
2201032706	ERY 10	0	cow	S.C.
2201032706	STR 20	2	cow	S.C.
2201032706	STR 40	0	cow	S.C.
2201032706	STR 60	0	cow	S.C.
2201032706	STR 80	0	cow	S.C.
2201032706	OTC 20	0	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
2201032706	OTC 40	0	cow	S.C.
2201032706	OTC 60	0	cow	S.C.
2201032706	OTC 80	0	cow	S.C.
2201032706	CTC 20	0	cow	S.C.
2201032706	CTC 40	0	cow	S.C.
2201032706	CTC 60	0	cow	S.C.
2201032706	CTC 80	0	cow	S.C.
2202032706	VAN 1	2	cow	S.C.
2202032706	VAN 3	2	cow	S.C.
2202032706	VAN 5	0	cow	S.C.
2202032706	VAN 10	0	cow	S.C.
2202032706	ERY 1	2	cow	S.C.
2202032706	ERY 3	2	cow	S.C.
2202032706	ERY 5	0	cow	S.C.
2202032706	ERY 10	0	cow	S.C.
2202032706	STR 20	1	cow	S.C.
2202032706	STR 40	0	cow	S.C.
2202032706	STR 60	0	cow	S.C.
2202032706	STR 80	0	cow	S.C.
2202032706	OTC 20	0	cow	S.C.
2202032706	OTC 40	0	cow	S.C.
2202032706	OTC 60	0	cow	S.C.
2202032706	OTC 80	0	cow	S.C.
2202032706	CTC 20	0	cow	S.C.
2202032706	CTC 40	0	cow	S.C.
2202032706	CTC 60	0	cow	S.C.
2202032706	CTC 80	0	cow	S.C.
2203032706	VAN 1	2	cow	S.C.
2203032706	VAN 3	2	cow	S.C.
2203032706	VAN 5	0	cow	S.C.
2203032706	VAN 10	0	cow	S.C.
2203032706	ERY 1	2	cow	S.C.
2203032706	ERY 3	2	cow	S.C.
2203032706	ERY 5	1	cow	S.C.
2203032706	ERY 10	0	cow	S.C.
2203032706	STR 20	0	cow	S.C.
2203032706	STR 40	0	cow	S.C.
2203032706	STR 60	0	cow	S.C.
2203032706	STR 80	0	cow	S.C.
2203032706	OTC 20	0	cow	S.C.
2203032706	OTC 40	0	cow	S.C.
2203032706	OTC 60	0	cow	S.C.
2203032706	OTC 80	0	cow	S.C.
2203032706	CTC 20	0	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
2203032706	CTC 40	0	cow	S.C.
2203032706	CTC 60	0	cow	S.C.
2203032706	CTC 80	0	cow	S.C.
2204032706	VAN 1	2	cow	S.C.
2204032706	VAN 3	2	cow	S.C.
2204032706	VAN 5	0	cow	S.C.
2204032706	VAN 10	0	cow	S.C.
2204032706	ERY 1	1	cow	S.C.
2204032706	ERY 3	0	cow	S.C.
2204032706	ERY 5	0	cow	S.C.
2204032706	ERY 10	0	cow	S.C.
2204032706	STR 20	0	cow	S.C.
2204032706	STR 40	0	cow	S.C.
2204032706	STR 60	0	cow	S.C.
2204032706	STR 80	0	cow	S.C.
2204032706	OTC 20	0	cow	S.C.
2204032706	OTC 40	0	cow	S.C.
2204032706	OTC 60	0	cow	S.C.
2204032706	OTC 80	0	cow	S.C.
2204032706	CTC 20	0	cow	S.C.
2204032706	CTC 40	0	cow	S.C.
2204032706	CTC 60	0	cow	S.C.
2204032706	CTC 80	0	cow	S.C.
2205032706	VAN 1	2	cow	S.C.
2205032706	VAN 3	2	cow	S.C.
2205032706	VAN 5	0	cow	S.C.
2205032706	VAN 10	0	cow	S.C.
2205032706	ERY 1	2	cow	S.C.
2205032706	ERY 3	1	cow	S.C.
2205032706	ERY 5	0	cow	S.C.
2205032706	ERY 10	0	cow	S.C.
2205032706	STR 20	2	cow	S.C.
2205032706	STR 40	0	cow	S.C.
2205032706	STR 60	0	cow	S.C.
2205032706	STR 80	0	cow	S.C.
2205032706	OTC 20	0	cow	S.C.
2205032706	OTC 40	0	cow	S.C.
2205032706	OTC 60	0	cow	S.C.
2205032706	OTC 80	0	cow	S.C.
2205032706	CTC 20	0	cow	S.C.
2205032706	CTC 40	0	cow	S.C.
2205032706	CTC 60	0	cow	S.C.
2205032706	CTC 80	0	cow	S.C.
2206032706	VAN 1	2	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
2206032706	VAN 3	2	cow	S.C.
2206032706	VAN 5	0	cow	S.C.
2206032706	VAN 10	0	cow	S.C.
2206032706	ERY 1	1	cow	S.C.
2206032706	ERY 3	0	cow	S.C.
2206032706	ERY 5	0	cow	S.C.
2206032706	ERY 10	0	cow	S.C.
2206032706	STR 20	1	cow	S.C.
2206032706	STR 40	0	cow	S.C.
2206032706	STR 60	0	cow	S.C.
2206032706	STR 80	0	cow	S.C.
2206032706	OTC 20	2	cow	S.C.
2206032706	OTC 40	2	cow	S.C.
2206032706	OTC 60	2	cow	S.C.
2206032706	OTC 80	2	cow	S.C.
2206032706	CTC 20	2	cow	S.C.
2206032706	CTC 40	2	cow	S.C.
2206032706	CTC 60	2	cow	S.C.
2206032706	CTC 80	0	cow	S.C.
2301032706	VAN 1	2	cow	S.C.
2301032706	VAN 3	2	cow	S.C.
2301032706	VAN 5	0	cow	S.C.
2301032706	VAN 10	0	cow	S.C.
2301032706	ERY 1	2	cow	S.C.
2301032706	ERY 3	1	cow	S.C.
2301032706	ERY 5	0	cow	S.C.
2301032706	ERY 10	0	cow	S.C.
2301032706	STR 20	0	cow	S.C.
2301032706	STR 40	0	cow	S.C.
2301032706	STR 60	0	cow	S.C.
2301032706	STR 80	0	cow	S.C.
2301032706	OTC 20	0	cow	S.C.
2301032706	OTC 40	0	cow	S.C.
2301032706	OTC 60	0	cow	S.C.
2301032706	OTC 80	0	cow	S.C.
2301032706	CTC 20	0	cow	S.C.
2301032706	CTC 40	0	cow	S.C.
2301032706	CTC 60	0	cow	S.C.
2301032706	CTC 80	0	cow	S.C.
2303032706	VAN 1	0	cow	S.C.
2303032706	VAN 3	0	cow	S.C.
2303032706	VAN 5	0	cow	S.C.
2303032706	VAN 10	0	cow	S.C.
2303032706	ERY 1	0	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
2303032706	ERY 3	0	cow	S.C.
2303032706	ERY 5	0	cow	S.C.
2303032706	ERY 10	0	cow	S.C.
2303032706	STR 20	2	cow	S.C.
2303032706	STR 40	2	cow	S.C.
2303032706	STR 60	2	cow	S.C.
2303032706	STR 80	2	cow	S.C.
2303032706	OTC 20	0	cow	S.C.
2303032706	OTC 40	0	cow	S.C.
2303032706	OTC 60	0	cow	S.C.
2303032706	OTC 80	0	cow	S.C.
2303032706	CTC 20	0	cow	S.C.
2303032706	CTC 40	0	cow	S.C.
2303032706	CTC 60	0	cow	S.C.
2303032706	CTC 80	0	cow	S.C.
2304032706	VAN 1	2	cow	S.C.
2304032706	VAN 3	2	cow	S.C.
2304032706	VAN 5	0	cow	S.C.
2304032706	VAN 10	0	cow	S.C.
2304032706	ERY 1	2	cow	S.C.
2304032706	ERY 3	1	cow	S.C.
2304032706	ERY 5	0	cow	S.C.
2304032706	ERY 10	0	cow	S.C.
2304032706	STR 20	2	cow	S.C.
2304032706	STR 40	0	cow	S.C.
2304032706	STR 60	0	cow	S.C.
2304032706	STR 80	0	cow	S.C.
2304032706	OTC 20	0	cow	S.C.
2304032706	OTC 40	0	cow	S.C.
2304032706	OTC 60	0	cow	S.C.
2304032706	OTC 80	0	cow	S.C.
2304032706	CTC 20	0	cow	S.C.
2304032706	CTC 40	0	cow	S.C.
2304032706	CTC 60	0	cow	S.C.
2304032706	CTC 80	0	cow	S.C.
2401032706	VAN 1	2	cow	S.C.
2401032706	VAN 3	2	cow	S.C.
2401032706	VAN 5	0	cow	S.C.
2401032706	VAN 10	0	cow	S.C.
2401032706	ERY 1	2	cow	S.C.
2401032706	ERY 3	1	cow	S.C.
2401032706	ERY 5	0	cow	S.C.
2401032706	ERY 10	0	cow	S.C.
2401032706	STR 20	0	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
2401032706	STR 40	0	cow	S.C.
2401032706	STR 60	0	cow	S.C.
2401032706	STR 80	0	cow	S.C.
2401032706	OTC 20	0	cow	S.C.
2401032706	OTC 40	0	cow	S.C.
2401032706	OTC 60	0	cow	S.C.
2401032706	OTC 80	0	cow	S.C.
2401032706	CTC 20	0	cow	S.C.
2401032706	CTC 40	0	cow	S.C.
2401032706	CTC 60	0	cow	S.C.
2401032706	CTC 80	0	cow	S.C.

Table 14 Data from ARA Plate Number 2. The isolate column contains the identification number for each isolate processed. 101032706 means that isolate came from sample 1 and was the first isolate. The final 6 numbers are the date that sample was collected (i.e., March 27, 2006 = 032706). The antibiotic column contains the antibiotic and concentration used, in μg/ml. Vancomycin was represented by VAN, erythromycin was ERY, streptomycin was STR, oxytetracycline hydrochloride was OTC, and chlortetracycline hydrochloride was CTC. The growth of each isolate was scored as a 0, 1, or 2 in the score column. This was later converted to binary code, using only 0 or 1 (scores of 2 would become 1). The source column displays the origin of the samples. The location column indicated where the samples were from. Horse and cow samples were from S.C. (Sinking Creek). Cat and dog samples were collected from other laboratory personnel with pets. WWTP sample locations were recorded based on what treatment plant they came from.

Isolate	Antibiotic	Score	Source	Location
2208032706	VAN 1	2	cow	S.C.
2208032706	VAN 3	2	cow	S.C.
2208032706	VAN 5	0	cow	S.C.
2208032706	VAN 10	0	cow	S.C.
2208032706	ERY 1	0	cow	S.C.
2208032706	ERY 3	0	cow	S.C.
2208032706	ERY 5	0	cow	S.C.
2208032706	ERY 10	0	cow	S.C.
2208032706	STR 20	0	cow	S.C.
2208032706	STR 40	0	cow	S.C.
2208032706	STR 60	0	cow	S.C.
2208032706	STR 80	0	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
2208032706	OTC 20	0	cow	S.C.
2208032706	OTC 40	1	cow	S.C.
2208032706	OTC 60	1	cow	S.C.
2208032706	OTC 80	0	cow	S.C.
2208032706	CTC 20	0	cow	S.C.
2208032706	CTC 40	0	cow	S.C.
2208032706	CTC 60	0	cow	S.C.
2208032706	CTC 80	0	cow	S.C.
2209032706	VAN 1	2	cow	S.C.
2209032706	VAN 3	2	cow	S.C.
2209032706	VAN 5	0	cow	S.C.
2209032706	VAN 10	0	cow	S.C.
2209032706	ERY 1	2	cow	S.C.
2209032706	ERY 3	2	cow	S.C.
2209032706	ERY 5	0	cow	S.C.
2209032706	ERY 10	0	cow	S.C.
2209032706	STR 20	2	cow	S.C.
2209032706	STR 40	0	cow	S.C.
2209032706	STR 60	0	cow	S.C.
2209032706	STR 80	0	cow	S.C.
2209032706	OTC 20	0	cow	S.C.
2209032706	OTC 40	0	cow	S.C.
2209032706	OTC 60	0	cow	S.C.
2209032706	OTC 80	0	cow	S.C.
2209032706	CTC 20	0	cow	S.C.
2209032706	CTC 40	0	cow	S.C.
2209032706	CTC 60	0	cow	S.C.
2209032706	CTC 80	0	cow	S.C.
2210032706	VAN 1	2	cow	S.C.
2210032706	VAN 3	2	cow	S.C.
2210032706	VAN 5	0	cow	S.C.
2210032706	VAN 10	0	cow	S.C.
2210032706	ERY 1	0	cow	S.C.
2210032706	ERY 3	0	cow	S.C.
2210032706	ERY 5	0	cow	S.C.
2210032706	ERY 10	0	cow	S.C.
2210032706	STR 20	0	cow	S.C.
2210032706	STR 40	0	cow	S.C.
2210032706	STR 60	0	cow	S.C.
2210032706	STR 80	0	cow	S.C.
2210032706	OTC 20	2	cow	S.C.
2210032706	OTC 40	2	cow	S.C.
2210032706	OTC 60	2	cow	S.C.
2210032706	OTC 80	2	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
2210032706	CTC 20	2	cow	S.C.
2210032706	CTC 40	2	cow	S.C.
2210032706	CTC 60	2	cow	S.C.
2210032706	CTC 80	2	cow	S.C.
2211032706	VAN 1	2	cow	S.C.
2211032706	VAN 3	2	cow	S.C.
2211032706	VAN 5	0	cow	S.C.
2211032706	VAN 10	0	cow	S.C.
2211032706	ERY 1	2	cow	S.C.
2211032706	ERY 3	2	cow	S.C.
2211032706	ERY 5	0	cow	S.C.
2211032706	ERY 10	0	cow	S.C.
2211032706	STR 20	0	cow	S.C.
2211032706	STR 40	0	cow	S.C.
2211032706	STR 60	0	cow	S.C.
2211032706	STR 80	0	cow	S.C.
2211032706	OTC 20	0	cow	S.C.
2211032706	OTC 40	0	cow	S.C.
2211032706	OTC 60	0	cow	S.C.
2211032706	OTC 80	0	cow	S.C.
2211032706	CTC 20	0	cow	S.C.
2211032706	CTC 40	0	cow	S.C.
2211032706	CTC 60	0	cow	S.C.
2211032706	CTC 80	0	cow	S.C.
2402032706	VAN 1	2	cow	S.C.
2402032706	VAN 3	2	cow	S.C.
2402032706	VAN 5	0	cow	S.C.
2402032706	VAN 10	0	cow	S.C.
2402032706	ERY 1	2	cow	S.C.
2402032706	ERY 3	2	cow	S.C.
2402032706	ERY 5	0	cow	S.C.
2402032706	ERY 10	0	cow	S.C.
2402032706	STR 20	2	cow	S.C.
2402032706	STR 40	0	cow	S.C.
2402032706	STR 60	0	cow	S.C.
2402032706	STR 80	0	cow	S.C.
2402032706	OTC 20	0	cow	S.C.
2402032706	OTC 40	0	cow	S.C.
2402032706	OTC 60	0	cow	S.C.
2402032706	OTC 80	0	cow	S.C.
2402032706	CTC 20	0	cow	S.C.
2402032706	CTC 40	0	cow	S.C.
2402032706	CTC 60	0	cow	S.C.
2402032706	CTC 80	0	cow	S.C.

Isolate	Antibiotic	Score	Source	Location
2403032706	VAN 1	2	cow	S.C.
2403032706	VAN 3	2	cow	S.C.
2403032706	VAN 5	0	cow	S.C.
2403032706	VAN 10	0	cow	S.C.
2403032706	ERY 1	2	cow	S.C.
2403032706	ERY 3	2	cow	S.C.
2403032706	ERY 5	0	cow	S.C.
2403032706	ERY 10	0	cow	S.C.
2403032706	STR 20	0	cow	S.C.
2403032706	STR 40	0	cow	S.C.
2403032706	STR 60	0	cow	S.C.
2403032706	STR 80	0	cow	S.C.
2403032706	OTC 20	0	cow	S.C.
2403032706	OTC 40	0	cow	S.C.
2403032706	OTC 60	0	cow	S.C.
2403032706	OTC 80	0	cow	S.C.
2403032706	CTC 20	0	cow	S.C.
2403032706	CTC 40	0	cow	S.C.
2403032706	CTC 60	0	cow	S.C.
2403032706	CTC 80	0	cow	S.C.
2501032706	VAN 1	2	goose	S.C.
2501032706	VAN 3	0	goose	S.C.
2501032706	VAN 5	0	goose	S.C.
2501032706	VAN 10	0	goose	S.C.
2501032706	ERY 1	1	goose	S.C.
2501032706	ERY 3	0	goose	S.C.
2501032706	ERY 5	0	goose	S.C.
2501032706	ERY 10	0	goose	S.C.
2501032706	STR 20	1	goose	S.C.
2501032706	STR 40	0	goose	S.C.
2501032706	STR 60	0	goose	S.C.
2501032706	STR 80	0	goose	S.C.
2501032706	OTC 20	2	goose	S.C.
2501032706	OTC 40	2	goose	S.C.
2501032706	OTC 60	2	goose	S.C.
2501032706	OTC 80	2	goose	S.C.
2501032706	CTC 20	2	goose	S.C.
2501032706	CTC 40	2	goose	S.C.
2501032706	CTC 60	2	goose	S.C.
2501032706	CTC 80	2	goose	S.C.
2502032706	VAN 1	0	goose	S.C.
2502032706	VAN 3	0	goose	S.C.
2502032706	VAN 5	0	goose	S.C.
2502032706	VAN 10	0	goose	S.C.

Isolate	Antibiotic	Score	Source	Location
2502032706	ERY 1	0	goose	S.C.
2502032706	ERY 3	0	goose	S.C.
2502032706	ERY 5	0	goose	S.C.
2502032706	ERY 10	0	goose	S.C.
2502032706	STR 20	2	goose	S.C.
2502032706	STR 40	0	goose	S.C.
2502032706	STR 60	0	goose	S.C.
2502032706	STR 80	0	goose	S.C.
2502032706	OTC 20	2	goose	S.C.
2502032706	OTC 40	1	goose	S.C.
2502032706	OTC 60	0	goose	S.C.
2502032706	OTC 80	0	goose	S.C.
2502032706	CTC 20	1	goose	S.C.
2502032706	CTC 40	0	goose	S.C.
2502032706	CTC 60	1	goose	S.C.
2502032706	CTC 80	0	goose	S.C.
2503032706	VAN 1	0	goose	S.C.
2503032706	VAN 3	0	goose	S.C.
2503032706	VAN 5	0	goose	S.C.
2503032706	VAN 10	0	goose	S.C.
2503032706	ERY 1	0	goose	S.C.
2503032706	ERY 3	0	goose	S.C.
2503032706	ERY 5	0	goose	S.C.
2503032706	ERY 10	0	goose	S.C.
2503032706	STR 20	2	goose	S.C.
2503032706	STR 40	0	goose	S.C.
2503032706	STR 60	0	goose	S.C.
2503032706	STR 80	0	goose	S.C.
2503032706	OTC 20	2	goose	S.C.
2503032706	OTC 40	2	goose	S.C.
2503032706	OTC 60	1	goose	S.C.
2503032706	OTC 80	1	goose	S.C.
2503032706	CTC 20	2	goose	S.C.
2503032706	CTC 40	2	goose	S.C.
2503032706	CTC 60	2	goose	S.C.
2503032706	CTC 80	2	goose	S.C.
2504032706	VAN 1	0	goose	S.C.
2504032706	VAN 3	0	goose	S.C.
2504032706	VAN 5	0	goose	S.C.
2504032706	VAN 10	0	goose	S.C.
2504032706	ERY 1	0	goose	S.C.
2504032706	ERY 3	0	goose	S.C.
2504032706	ERY 5	0	goose	S.C.
2504032706	ERY 10	0	goose	S.C.

Isolate	Antibiotic	Score	Source	Location
2504032706	STR 20	2	goose	S.C.
2504032706	STR 40	0	goose	S.C.
2504032706	STR 60	0	goose	S.C.
2504032706	STR 80	0	goose	S.C.
2504032706	OTC 20	2	goose	S.C.
2504032706	OTC 40	2	goose	S.C.
2504032706	OTC 60	1	goose	S.C.
2504032706	OTC 80	1	goose	S.C.
2504032706	CTC 20	2	goose	S.C.
2504032706	CTC 40	2	goose	S.C.
2504032706	CTC 60	2	goose	S.C.
2504032706	CTC 80	2	goose	S.C.
2505032706	VAN 1	0	goose	S.C.
2505032706	VAN 3	0	goose	S.C.
2505032706	VAN 5	0	goose	S.C.
2505032706	VAN 10	0	goose	S.C.
2505032706	ERY 1	0	goose	S.C.
2505032706	ERY 3	0	goose	S.C.
2505032706	ERY 5	0	goose	S.C.
2505032706	ERY 10	0	goose	S.C.
2505032706	STR 20	2	goose	S.C.
2505032706	STR 40	0	goose	S.C.
2505032706	STR 60	0	goose	S.C.
2505032706	STR 80	0	goose	S.C.
2505032706	OTC 20	2	goose	S.C.
2505032706	OTC 40	2	goose	S.C.
2505032706	OTC 60	2	goose	S.C.
2505032706	OTC 80	2	goose	S.C.
2505032706	CTC 20	2	goose	S.C.
2505032706	CTC 40	2	goose	S.C.
2505032706	CTC 60	2	goose	S.C.
2505032706	CTC 80	2	goose	S.C.
2506032706	VAN 1	0	goose	S.C.
2506032706	VAN 3	0	goose	S.C.
2506032706	VAN 5	0	goose	S.C.
2506032706	VAN 10	0	goose	S.C.
2506032706	ERY 1	1	goose	S.C.
2506032706	ERY 3	0	goose	S.C.
2506032706	ERY 5	0	goose	S.C.
2506032706	ERY 10	0	goose	S.C.
2506032706	STR 20	1	goose	S.C.
2506032706	STR 40	0	goose	S.C.
2506032706	STR 60	0	goose	S.C.
2506032706	STR 80	0	goose	S.C.

Isolate	Antibiotic	Score	Source	Location
2506032706	OTC 20	2	goose	S.C.
2506032706	OTC 40	1	goose	S.C.
2506032706	OTC 60	1	goose	S.C.
2506032706	OTC 80	0	goose	S.C.
2506032706	CTC 20	2	goose	S.C.
2506032706	CTC 40	2	goose	S.C.
2506032706	CTC 60	2	goose	S.C.
2506032706	CTC 80	1	goose	S.C.
2701032706	VAN 1	0	chicken	S.C.
2701032706	VAN 3	0	chicken	S.C.
2701032706	VAN 5	0	chicken	S.C.
2701032706	VAN 10	0	chicken	S.C.
2701032706	ERY 1	0	chicken	S.C.
2701032706	ERY 3	0	chicken	S.C.
2701032706	ERY 5	0	chicken	S.C.
2701032706	ERY 10	0	chicken	S.C.
2701032706	STR 20	2	chicken	S.C.
2701032706	STR 40	2	chicken	S.C.
2701032706	STR 60	0	chicken	S.C.
2701032706	STR 80	0	chicken	S.C.
2701032706	OTC 20	2	chicken	S.C.
2701032706	OTC 40	2	chicken	S.C.
2701032706	OTC 60	2	chicken	S.C.
2701032706	OTC 80	2	chicken	S.C.
2701032706	CTC 20	2	chicken	S.C.
2701032706	CTC 40	2	chicken	S.C.
2701032706	CTC 60	2	chicken	S.C.
2701032706	CTC 80	2	chicken	S.C.
2702032706	VAN 1	0	chicken	S.C.
2702032706	VAN 3	0	chicken	S.C.
2702032706	VAN 5	0	chicken	S.C.
2702032706	VAN 10	0	chicken	S.C.
2702032706	ERY 1	1	chicken	S.C.
2702032706	ERY 3	0	chicken	S.C.
2702032706	ERY 5	0	chicken	S.C.
2702032706	ERY 10	0	chicken	S.C.
2702032706	STR 20	0	chicken	S.C.
2702032706	STR 40	0	chicken	S.C.
2702032706	STR 60	0	chicken	S.C.
2702032706	STR 80	0	chicken	S.C.
2702032706	OTC 20	2	chicken	S.C.
2702032706	OTC 40	2	chicken	S.C.
2702032706	OTC 60	2	chicken	S.C.
2702032706	OTC 80	2	chicken	S.C.

Isolate	Antibiotic	Score	Source	Location
2702032706	CTC 20	2	chicken	S.C.
2702032706	CTC 40	2	chicken	S.C.
2702032706	CTC 60	2	chicken	S.C.
2702032706	CTC 80	2	chicken	S.C.
2703032706	VAN 1	0	chicken	S.C.
2703032706	VAN 3	0	chicken	S.C.
2703032706	VAN 5	0	chicken	S.C.
2703032706	VAN 10	0	chicken	S.C.
2703032706	ERY 1	0	chicken	S.C.
2703032706	ERY 3	0	chicken	S.C.
2703032706	ERY 5	0	chicken	S.C.
2703032706	ERY 10	0	chicken	S.C.
2703032706	STR 20	2	chicken	S.C.
2703032706	STR 40	2	chicken	S.C.
2703032706	STR 60	0	chicken	S.C.
2703032706	STR 80	0	chicken	S.C.
2703032706	OTC 20	2	chicken	S.C.
2703032706	OTC 40	2	chicken	S.C.
2703032706	OTC 60	2	chicken	S.C.
2703032706	OTC 80	2	chicken	S.C.
2703032706	CTC 20	2	chicken	S.C.
2703032706	CTC 40	2	chicken	S.C.
2703032706	CTC 60	2	chicken	S.C.
2703032706	CTC 80	2	chicken	S.C.
2704032706	VAN 1	0	chicken	S.C.
2704032706	VAN 3	0	chicken	S.C.
2704032706	VAN 5	0	chicken	S.C.
2704032706	VAN 10	0	chicken	S.C.
2704032706	ERY 1	1	chicken	S.C.
2704032706	ERY 3	0	chicken	S.C.
2704032706	ERY 5	0	chicken	S.C.
2704032706	ERY 10	0	chicken	S.C.
2704032706	STR 20	2	chicken	S.C.
2704032706	STR 40	0	chicken	S.C.
2704032706	STR 60	0	chicken	S.C.
2704032706	STR 80	0	chicken	S.C.
2704032706	OTC 20	2	chicken	S.C.
2704032706	OTC 40	2	chicken	S.C.
2704032706	OTC 60	2	chicken	S.C.
2704032706	OTC 80	1	chicken	S.C.
2704032706	CTC 20	2	chicken	S.C.
2704032706	CTC 40	2	chicken	S.C.
2704032706	CTC 60	2	chicken	S.C.
2704032706	CTC 80	2	chicken	S.C.

Isolate	Antibiotic	Score	Source	Location
2705032706	VAN 1	0	chicken	S.C.
2705032706	VAN 3	0	chicken	S.C.
2705032706	VAN 5	0	chicken	S.C.
2705032706	VAN 10	0	chicken	S.C.
2705032706	ERY 1	0	chicken	S.C.
2705032706	ERY 3	0	chicken	S.C.
2705032706	ERY 5	0	chicken	S.C.
2705032706	ERY 10	0	chicken	S.C.
2705032706	STR 20	2	chicken	S.C.
2705032706	STR 40	1	chicken	S.C.
2705032706	STR 60	0	chicken	S.C.
2705032706	STR 80	0	chicken	S.C.
2705032706	OTC 20	2	chicken	S.C.
2705032706	OTC 40	2	chicken	S.C.
2705032706	OTC 60	2	chicken	S.C.
2705032706	OTC 80	1	chicken	S.C.
2705032706	CTC 20	2	chicken	S.C.
2705032706	CTC 40	2	chicken	S.C.
2705032706	CTC 60	2	chicken	S.C.
2705032706	CTC 80	1	chicken	S.C.
2706032706	VAN 1	0	chicken	S.C.
2706032706	VAN 3	0	chicken	S.C.
2706032706	VAN 5	0	chicken	S.C.
2706032706	VAN 10	0	chicken	S.C.
2706032706	ERY 1	2	chicken	S.C.
2706032706	ERY 3	0	chicken	S.C.
2706032706	ERY 5	0	chicken	S.C.
2706032706	ERY 10	0	chicken	S.C.
2706032706	STR 20	0	chicken	S.C.
2706032706	STR 40	0	chicken	S.C.
2706032706	STR 60	0	chicken	S.C.
2706032706	STR 80	0	chicken	S.C.
2706032706	OTC 20	2	chicken	S.C.
2706032706	OTC 40	2	chicken	S.C.
2706032706	OTC 60	2	chicken	S.C.
2706032706	OTC 80	2	chicken	S.C.
2706032706	CTC 20	2	chicken	S.C.
2706032706	CTC 40	2	chicken	S.C.
2706032706	CTC 60	2	chicken	S.C.
2706032706	CTC 80	2	chicken	S.C.
2707032706	VAN 1	0	chicken	S.C.
2707032706	VAN 3	0	chicken	S.C.
2707032706	VAN 5	0	chicken	S.C.
2707032706	VAN 10	0	chicken	S.C.

Isolate	Antibiotic	Score	Source	Location
2707032706	ERY 1	0	chicken	S.C.
2707032706	ERY 3	0	chicken	S.C.
2707032706	ERY 5	0	chicken	S.C.
2707032706	ERY 10	0	chicken	S.C.
2707032706	STR 20	2	chicken	S.C.
2707032706	STR 40	1	chicken	S.C.
2707032706	STR 60	0	chicken	S.C.
2707032706	STR 80	0	chicken	S.C.
2707032706	OTC 20	2	chicken	S.C.
2707032706	OTC 40	2	chicken	S.C.
2707032706	OTC 60	2	chicken	S.C.
2707032706	OTC 80	1	chicken	S.C.
2707032706	CTC 20	2	chicken	S.C.
2707032706	CTC 40	2	chicken	S.C.
2707032706	CTC 60	2	chicken	S.C.
2707032706	CTC 80	2	chicken	S.C.
2708032706	VAN 1	0	chicken	S.C.
2708032706	VAN 3	0	chicken	S.C.
2708032706	VAN 5	0	chicken	S.C.
2708032706	VAN 10	0	chicken	S.C.
2708032706	ERY 1	0	chicken	S.C.
2708032706	ERY 3	0	chicken	S.C.
2708032706	ERY 5	0	chicken	S.C.
2708032706	ERY 10	0	chicken	S.C.
2708032706	STR 20	2	chicken	S.C.
2708032706	STR 40	1	chicken	S.C.
2708032706	STR 60	0	chicken	S.C.
2708032706	STR 80	0	chicken	S.C.
2708032706	OTC 20	2	chicken	S.C.
2708032706	OTC 40	2	chicken	S.C.
2708032706	OTC 60	2	chicken	S.C.
2708032706	OTC 80	1	chicken	S.C.
2708032706	CTC 20	2	chicken	S.C.
2708032706	CTC 40	2	chicken	S.C.
2708032706	CTC 60	2	chicken	S.C.
2708032706	CTC 80	2	chicken	S.C.
2709032706	VAN 1	0	chicken	S.C.
2709032706	VAN 3	0	chicken	S.C.
2709032706	VAN 5	0	chicken	S.C.
2709032706	VAN 10	0	chicken	S.C.
2709032706	ERY 1	0	chicken	S.C.
2709032706	ERY 3	0	chicken	S.C.
2709032706	ERY 5	0	chicken	S.C.
2709032706	ERY 10	0	chicken	S.C.

Isolate	Antibiotic	Score	Source	Location
2709032706	STR 20	2	chicken	S.C.
2709032706	STR 40	0	chicken	S.C.
2709032706	STR 60	0	chicken	S.C.
2709032706	STR 80	0	chicken	S.C.
2709032706	OTC 20	2	chicken	S.C.
2709032706	OTC 40	2	chicken	S.C.
2709032706	OTC 60	2	chicken	S.C.
2709032706	OTC 80	1	chicken	S.C.
2709032706	CTC 20	2	chicken	S.C.
2709032706	CTC 40	2	chicken	S.C.
2709032706	CTC 60	2	chicken	S.C.
2709032706	CTC 80	2	chicken	S.C.
2710032706	VAN 1	0	chicken	S.C.
2710032706	VAN 3	0	chicken	S.C.
2710032706	VAN 5	0	chicken	S.C.
2710032706	VAN 10	0	chicken	S.C.
2710032706	ERY 1	0	chicken	S.C.
2710032706	ERY 3	0	chicken	S.C.
2710032706	ERY 5	0	chicken	S.C.
2710032706	ERY 10	0	chicken	S.C.
2710032706	STR 20	2	chicken	S.C.
2710032706	STR 40	1	chicken	S.C.
2710032706	STR 60	0	chicken	S.C.
2710032706	STR 80	0	chicken	S.C.
2710032706	OTC 20	2	chicken	S.C.
2710032706	OTC 40	2	chicken	S.C.
2710032706	OTC 60	2	chicken	S.C.
2710032706	OTC 80	1	chicken	S.C.
2710032706	CTC 20	2	chicken	S.C.
2710032706	CTC 40	2	chicken	S.C.
2710032706	CTC 60	2	chicken	S.C.
2710032706	CTC 80	1	chicken	S.C.
2711032706	VAN 1	0	chicken	S.C.
2711032706	VAN 3	0	chicken	S.C.
2711032706	VAN 5	0	chicken	S.C.
2711032706	VAN 10	0	chicken	S.C.
2711032706	ERY 1	0	chicken	S.C.
2711032706	ERY 3	0	chicken	S.C.
2711032706	ERY 5	0	chicken	S.C.
2711032706	ERY 10	0	chicken	S.C.
2711032706	STR 20	2	chicken	S.C.
2711032706	STR 40	2	chicken	S.C.
2711032706	STR 60	1	chicken	S.C.
2711032706	STR 80	0	chicken	S.C.

Isolate	Antibiotic	Score	Source	Location
2711032706	OTC 20	2	chicken	S.C.
2711032706	OTC 40	2	chicken	S.C.
2711032706	OTC 60	2	chicken	S.C.
2711032706	OTC 80	1	chicken	S.C.
2711032706	CTC 20	2	chicken	S.C.
2711032706	CTC 40	2	chicken	S.C.
2711032706	CTC 60	2	chicken	S.C.
2711032706	CTC 80	2	chicken	S.C.
2712032706	VAN 1	0	chicken	S.C.
2712032706	VAN 3	0	chicken	S.C.
2712032706	VAN 5	0	chicken	S.C.
2712032706	VAN 10	0	chicken	S.C.
2712032706	ERY 1	0	chicken	S.C.
2712032706	ERY 3	0	chicken	S.C.
2712032706	ERY 5	0	chicken	S.C.
2712032706	ERY 10	0	chicken	S.C.
2712032706	STR 20	1	chicken	S.C.
2712032706	STR 40	0	chicken	S.C.
2712032706	STR 60	0	chicken	S.C.
2712032706	STR 80	0	chicken	S.C.
2712032706	OTC 20	2	chicken	S.C.
2712032706	OTC 40	2	chicken	S.C.
2712032706	OTC 60	2	chicken	S.C.
2712032706	OTC 80	0	chicken	S.C.
2712032706	CTC 20	2	chicken	S.C.
2712032706	CTC 40	2	chicken	S.C.
2712032706	CTC 60	2	chicken	S.C.
2712032706	CTC 80	2	chicken	S.C.
101090506	VAN 1	2	cat	Michelle
101090506	VAN 3	2	cat	Michelle
101090506	VAN 5	0	cat	Michelle
101090506	VAN 10	0	cat	Michelle
101090506	ERY 1	0	cat	Michelle
101090506	ERY 3	0	cat	Michelle
101090506	ERY 5	0	cat	Michelle
101090506	ERY 10	0	cat	Michelle
101090506	STR 20	1	cat	Michelle
101090506	STR 40	0	cat	Michelle
101090506	STR 60	0	cat	Michelle
101090506	STR 80	0	cat	Michelle
101090506	OTC 20	0	cat	Michelle
101090506	OTC 40	0	cat	Michelle
101090506	OTC 60	0	cat	Michelle
101090506	OTC 80	0	cat	Michelle

Isolate	Antibiotic	Score	Source	Location
101090506	CTC 20	0	cat	Michelle
101090506	CTC 40	0	cat	Michelle
101090506	CTC 60	0	cat	Michelle
101090506	CTC 80	0	cat	Michelle
102090506	VAN 1	2	cat	Michelle
102090506	VAN 3	0	cat	Michelle
102090506	VAN 5	0	cat	Michelle
102090506	VAN 10	0	cat	Michelle
102090506	ERY 1	0	cat	Michelle
102090506	ERY 3	0	cat	Michelle
102090506	ERY 5	0	cat	Michelle
102090506	ERY 10	0	cat	Michelle
102090506	STR 20	2	cat	Michelle
102090506	STR 40	2	cat	Michelle
102090506	STR 60	1	cat	Michelle
102090506	STR 80	0	cat	Michelle
102090506	OTC 20	0	cat	Michelle
102090506	OTC 40	0	cat	Michelle
102090506	OTC 60	0	cat	Michelle
102090506	OTC 80	0	cat	Michelle
102090506	CTC 20	0	cat	Michelle
102090506	CTC 40	0	cat	Michelle
102090506	CTC 60	0	cat	Michelle
102090506	CTC 80	0	cat	Michelle
103090506	VAN 1	2	cat	Michelle
103090506	VAN 3	0	cat	Michelle
103090506	VAN 5	0	cat	Michelle
103090506	VAN 10	0	cat	Michelle
103090506	ERY 1	0	cat	Michelle
103090506	ERY 3	0	cat	Michelle
103090506	ERY 5	0	cat	Michelle
103090506	ERY 10	0	cat	Michelle
103090506	STR 20	2	cat	Michelle
103090506	STR 40	2	cat	Michelle
103090506	STR 60	1	cat	Michelle
103090506	STR 80	0	cat	Michelle
103090506	OTC 20	0	cat	Michelle
103090506	OTC 40	0	cat	Michelle
103090506	OTC 60	0	cat	Michelle
103090506	OTC 80	0	cat	Michelle
103090506	CTC 20	0	cat	Michelle
103090506	CTC 40	0	cat	Michelle
103090506	CTC 60	0	cat	Michelle
103090506	CTC 80	0	cat	Michelle

Isolate	Antibiotic	Score	Source	Location
104090506	VAN 1	2	cat	Michelle
104090506	VAN 3	0	cat	Michelle
104090506	VAN 5	0	cat	Michelle
104090506	VAN 10	0	cat	Michelle
104090506	ERY 1	0	cat	Michelle
104090506	ERY 3	0	cat	Michelle
104090506	ERY 5	0	cat	Michelle
104090506	ERY 10	0	cat	Michelle
104090506	STR 20	2	cat	Michelle
104090506	STR 40	2	cat	Michelle
104090506	STR 60	1	cat	Michelle
104090506	STR 80	0	cat	Michelle
104090506	OTC 20	0	cat	Michelle
104090506	OTC 40	0	cat	Michelle
104090506	OTC 60	0	cat	Michelle
104090506	OTC 80	0	cat	Michelle
104090506	CTC 20	0	cat	Michelle
104090506	CTC 40	0	cat	Michelle
104090506	CTC 60	0	cat	Michelle
104090506	CTC 80	0	cat	Michelle
105090506	VAN 1	2	cat	Michelle
105090506	VAN 3	0	cat	Michelle
105090506	VAN 5	0	cat	Michelle
105090506	VAN 10	0	cat	Michelle
105090506	ERY 1	0	cat	Michelle
105090506	ERY 3	0	cat	Michelle
105090506	ERY 5	0	cat	Michelle
105090506	ERY 10	0	cat	Michelle
105090506	STR 20	2	cat	Michelle
105090506	STR 40	2	cat	Michelle
105090506	STR 60	1	cat	Michelle
105090506	STR 80	0	cat	Michelle
105090506	OTC 20	0	cat	Michelle
105090506	OTC 40	0	cat	Michelle
105090506	OTC 60	0	cat	Michelle
105090506	OTC 80	0	cat	Michelle
105090506	CTC 20	0	cat	Michelle
105090506	CTC 40	0	cat	Michelle
105090506	CTC 60	0	cat	Michelle
105090506	CTC 80	0	cat	Michelle
106090506	VAN 1	2	cat	Michelle
106090506	VAN 3	0	cat	Michelle
106090506	VAN 5	0	cat	Michelle
106090506	VAN 10	0	cat	Michelle

Isolate	Antibiotic	Score	Source	Location
106090506	ERY 1	0	cat	Michelle
106090506	ERY 3	0	cat	Michelle
106090506	ERY 5	0	cat	Michelle
106090506	ERY 10	0	cat	Michelle
106090506	STR 20	2	cat	Michelle
106090506	STR 40	2	cat	Michelle
106090506	STR 60	1	cat	Michelle
106090506	STR 80	0	cat	Michelle
106090506	OTC 20	0	cat	Michelle
106090506	OTC 40	0	cat	Michelle
106090506	OTC 60	0	cat	Michelle
106090506	OTC 80	0	cat	Michelle
106090506	CTC 20	0	cat	Michelle
106090506	CTC 40	0	cat	Michelle
106090506	CTC 60	0	cat	Michelle
106090506	CTC 80	0	cat	Michelle
108090506	VAN 1	2	cat	Michelle
108090506	VAN 3	0	cat	Michelle
108090506	VAN 5	0	cat	Michelle
108090506	VAN 10	0	cat	Michelle
108090506	ERY 1	0	cat	Michelle
108090506	ERY 3	0	cat	Michelle
108090506	ERY 5	0	cat	Michelle
108090506	ERY 10	0	cat	Michelle
108090506	STR 20	2	cat	Michelle
108090506	STR 40	2	cat	Michelle
108090506	STR 60	1	cat	Michelle
108090506	STR 80	0	cat	Michelle
108090506	OTC 20	0	cat	Michelle
108090506	OTC 40	0	cat	Michelle
108090506	OTC 60	0	cat	Michelle
108090506	OTC 80	0	cat	Michelle
108090506	CTC 20	0	cat	Michelle
108090506	CTC 40	0	cat	Michelle
108090506	CTC 60	0	cat	Michelle
108090506	CTC 80	0	cat	Michelle
109090506	VAN 1	2	cat	Michelle
109090506	VAN 3	0	cat	Michelle
109090506	VAN 5	0	cat	Michelle
109090506	VAN 10	0	cat	Michelle
109090506	ERY 1	0	cat	Michelle
109090506	ERY 3	0	cat	Michelle
109090506	ERY 5	0	cat	Michelle
109090506	ERY 10	0	cat	Michelle

Isolate	Antibiotic	Score	Source	Location
109090506	STR 20	2	cat	Michelle
109090506	STR 40	2	cat	Michelle
109090506	STR 60	1	cat	Michelle
109090506	STR 80	0	cat	Michelle
109090506	OTC 20	0	cat	Michelle
109090506	OTC 40	0	cat	Michelle
109090506	OTC 60	0	cat	Michelle
109090506	OTC 80	0	cat	Michelle
109090506	CTC 20	0	cat	Michelle
109090506	CTC 40	0	cat	Michelle
109090506	CTC 60	0	cat	Michelle
109090506	CTC 80	0	cat	Michelle
110090506	VAN 1	2	cat	Michelle
110090506	VAN 3	0	cat	Michelle
110090506	VAN 5	0	cat	Michelle
110090506	VAN 10	0	cat	Michelle
110090506	ERY 1	0	cat	Michelle
110090506	ERY 3	0	cat	Michelle
110090506	ERY 5	0	cat	Michelle
110090506	ERY 10	0	cat	Michelle
110090506	STR 20	2	cat	Michelle
110090506	STR 40	2	cat	Michelle
110090506	STR 60	1	cat	Michelle
110090506	STR 80	0	cat	Michelle
110090506	OTC 20	0	cat	Michelle
110090506	OTC 40	0	cat	Michelle
110090506	OTC 60	0	cat	Michelle
110090506	OTC 80	0	cat	Michelle
110090506	CTC 20	0	cat	Michelle
110090506	CTC 40	0	cat	Michelle
110090506	CTC 60	0	cat	Michelle
110090506	CTC 80	0	cat	Michelle
111090506	VAN 1	0	cat	Michelle
111090506	VAN 3	0	cat	Michelle
111090506	VAN 5	0	cat	Michelle
111090506	VAN 10	0	cat	Michelle
111090506	ERY 1	0	cat	Michelle
111090506	ERY 3	0	cat	Michelle
111090506	ERY 5	0	cat	Michelle
111090506	ERY 10	0	cat	Michelle
111090506	STR 20	2	cat	Michelle
111090506	STR 40	2	cat	Michelle
111090506	STR 60	0	cat	Michelle
111090506	STR 80	0	cat	Michelle

Isolate	Antibiotic	Score	Source	Location
111090506	OTC 20	0	cat	Michelle
111090506	OTC 40	0	cat	Michelle
111090506	OTC 60	0	cat	Michelle
111090506	OTC 80	0	cat	Michelle
111090506	CTC 20	0	cat	Michelle
111090506	CTC 40	0	cat	Michelle
111090506	CTC 60	0	cat	Michelle
111090506	CTC 80	0	cat	Michelle
112090506	VAN 1	0	cat	Michelle
112090506	VAN 3	0	cat	Michelle
112090506	VAN 5	0	cat	Michelle
112090506	VAN 10	0	cat	Michelle
112090506	ERY 1	2	cat	Michelle
112090506	ERY 3	1	cat	Michelle
112090506	ERY 5	0	cat	Michelle
112090506	ERY 10	0	cat	Michelle
112090506	STR 20	2	cat	Michelle
112090506	STR 40	2	cat	Michelle
112090506	STR 60	0	cat	Michelle
112090506	STR 80	0	cat	Michelle
112090506	OTC 20	0	cat	Michelle
112090506	OTC 40	0	cat	Michelle
112090506	OTC 60	0	cat	Michelle
112090506	OTC 80	0	cat	Michelle
112090506	CTC 20	0	cat	Michelle
112090506	CTC 40	0	cat	Michelle
112090506	CTC 60	0	cat	Michelle
112090506	CTC 80	0	cat	Michelle
113090506	VAN 1	1	cat	Michelle
113090506	VAN 3	0	cat	Michelle
113090506	VAN 5	0	cat	Michelle
113090506	VAN 10	0	cat	Michelle
113090506	ERY 1	2	cat	Michelle
113090506	ERY 3	0	cat	Michelle
113090506	ERY 5	0	cat	Michelle
113090506	ERY 10	0	cat	Michelle
113090506	STR 20	2	cat	Michelle
113090506	STR 40	2	cat	Michelle
113090506	STR 60	0	cat	Michelle
113090506	STR 80	0	cat	Michelle
113090506	OTC 20	0	cat	Michelle
113090506	OTC 40	0	cat	Michelle
113090506	OTC 60	0	cat	Michelle
113090506	OTC 80	0	cat	Michelle

Isolate	Antibiotic	Score	Source	Location
113090506	CTC 20	0	cat	Michelle
113090506	CTC 40	0	cat	Michelle
113090506	CTC 60	0	cat	Michelle
113090506	CTC 80	0	cat	Michelle
114032706	VAN 1	2	cat	Michelle
114032706	VAN 3	0	cat	Michelle
114032706	VAN 5	0	cat	Michelle
114032706	VAN 10	0	cat	Michelle
114032706	ERY 1	0	cat	Michelle
114032706	ERY 3	0	cat	Michelle
114032706	ERY 5	0	cat	Michelle
114032706	ERY 10	0	cat	Michelle
114032706	STR 20	2	cat	Michelle
114032706	STR 40	2	cat	Michelle
114032706	STR 60	1	cat	Michelle
114032706	STR 80	0	cat	Michelle
114032706	OTC 20	0	cat	Michelle
114032706	OTC 40	0	cat	Michelle
114032706	OTC 60	0	cat	Michelle
114032706	OTC 80	0	cat	Michelle
114032706	CTC 20	0	cat	Michelle
114032706	CTC 40	0	cat	Michelle
114032706	CTC 60	0	cat	Michelle
114032706	CTC 80	0	cat	Michelle
115090506	VAN 1	2	cat	Michelle
115090506	VAN 3	0	cat	Michelle
115090506	VAN 5	0	cat	Michelle
115090506	VAN 10	0	cat	Michelle
115090506	ERY 1	0	cat	Michelle
115090506	ERY 3	0	cat	Michelle
115090506	ERY 5	0	cat	Michelle
115090506	ERY 10	0	cat	Michelle
115090506	STR 20	2	cat	Michelle
115090506	STR 40	2	cat	Michelle
115090506	STR 60	1	cat	Michelle
115090506	STR 80	0	cat	Michelle
115090506	OTC 20	0	cat	Michelle
115090506	OTC 40	0	cat	Michelle
115090506	OTC 60	0	cat	Michelle
115090506	OTC 80	0	cat	Michelle
115090506	CTC 20	0	cat	Michelle
115090506	CTC 40	0	cat	Michelle
115090506	CTC 60	0	cat	Michelle
115090506	CTC 80	0	cat	Michelle

Isolate	Antibiotic	Score	Source	Location
201090506	VAN 1	2	cat	Kelly
201090506	VAN 3	0	cat	Kelly
201090506	VAN 5	0	cat	Kelly
201090506	VAN 10	0	cat	Kelly
201090506	ERY 1	0	cat	Kelly
201090506	ERY 3	0	cat	Kelly
201090506	ERY 5	0	cat	Kelly
201090506	ERY 10	0	cat	Kelly
201090506	STR 20	2	cat	Kelly
201090506	STR 40	2	cat	Kelly
201090506	STR 60	1	cat	Kelly
201090506	STR 80	0	cat	Kelly
201090506	OTC 20	0	cat	Kelly
201090506	OTC 40	0	cat	Kelly
201090506	OTC 60	0	cat	Kelly
201090506	OTC 80	0	cat	Kelly
201090506	CTC 20	0	cat	Kelly
201090506	CTC 40	0	cat	Kelly
201090506	CTC 60	0	cat	Kelly
201090506	CTC 80	0	cat	Kelly
202090506	VAN 1	2	cat	Kelly
202090506	VAN 3	0	cat	Kelly
202090506	VAN 5	0	cat	Kelly
202090506	VAN 10	0	cat	Kelly
202090506	ERY 1	0	cat	Kelly
202090506	ERY 3	0	cat	Kelly
202090506	ERY 5	0	cat	Kelly
202090506	ERY 10	0	cat	Kelly
202090506	STR 20	2	cat	Kelly
202090506	STR 40	2	cat	Kelly
202090506	STR 60	1	cat	Kelly
202090506	STR 80	0	cat	Kelly
202090506	OTC 20	0	cat	Kelly
202090506	OTC 40	0	cat	Kelly
202090506	OTC 60	0	cat	Kelly
202090506	OTC 80	0	cat	Kelly
202090506	CTC 20	0	cat	Kelly
202090506	CTC 40	0	cat	Kelly
202090506	CTC 60	0	cat	Kelly
202090506	CTC 80	0	cat	Kelly
203090506	VAN 1	2	cat	Kelly
203090506	VAN 3	0	cat	Kelly
203090506	VAN 5	0	cat	Kelly
203090506	VAN 10	0	cat	Kelly

Isolate	Antibiotic	Score	Source	Location
203090506	ERY 1	0	cat	Kelly
203090506	ERY 3	0	cat	Kelly
203090506	ERY 5	0	cat	Kelly
203090506	ERY 10	0	cat	Kelly
203090506	STR 20	2	cat	Kelly
203090506	STR 40	2	cat	Kelly
203090506	STR 60	1	cat	Kelly
203090506	STR 80	0	cat	Kelly
203090506	OTC 20	0	cat	Kelly
203090506	OTC 40	0	cat	Kelly
203090506	OTC 60	0	cat	Kelly
203090506	OTC 80	0	cat	Kelly
203090506	CTC 20	0	cat	Kelly
203090506	CTC 40	0	cat	Kelly
203090506	CTC 60	0	cat	Kelly
203090506	CTC 80	0	cat	Kelly
204090506	VAN 1	2	cat	Kelly
204090506	VAN 3	0	cat	Kelly
204090506	VAN 5	0	cat	Kelly
204090506	VAN 10	0	cat	Kelly
204090506	ERY 1	0	cat	Kelly
204090506	ERY 3	0	cat	Kelly
204090506	ERY 5	0	cat	Kelly
204090506	ERY 10	0	cat	Kelly
204090506	STR 20	2	cat	Kelly
204090506	STR 40	2	cat	Kelly
204090506	STR 60	1	cat	Kelly
204090506	STR 80	0	cat	Kelly
204090506	OTC 20	0	cat	Kelly
204090506	OTC 40	0	cat	Kelly
204090506	OTC 60	0	cat	Kelly
204090506	OTC 80	0	cat	Kelly
204090506	CTC 20	0	cat	Kelly
204090506	CTC 40	0	cat	Kelly
204090506	CTC 60	0	cat	Kelly
204090506	CTC 80	0	cat	Kelly
205090506	VAN 1	2	cat	Kelly
205090506	VAN 3	0	cat	Kelly
205090506	VAN 5	0	cat	Kelly
205090506	VAN 10	0	cat	Kelly
205090506	ERY 1	0	cat	Kelly
205090506	ERY 3	0	cat	Kelly
205090506	ERY 5	0	cat	Kelly
205090506	ERY 10	0	cat	Kelly

Isolate	Antibiotic	Score	Source	Location
205090506	STR 20	2	cat	Kelly
205090506	STR 40	2	cat	Kelly
205090506	STR 60	1	cat	Kelly
205090506	STR 80	0	cat	Kelly
205090506	OTC 20	0	cat	Kelly
205090506	OTC 40	0	cat	Kelly
205090506	OTC 60	0	cat	Kelly
205090506	OTC 80	0	cat	Kelly
205090506	CTC 20	0	cat	Kelly
205090506	CTC 40	0	cat	Kelly
205090506	CTC 60	0	cat	Kelly
205090506	CTC 80	0	cat	Kelly
207090506	VAN 1	2	cat	Kelly
207090506	VAN 3	0	cat	Kelly
207090506	VAN 5	0	cat	Kelly
207090506	VAN 10	0	cat	Kelly
207090506	ERY 1	0	cat	Kelly
207090506	ERY 3	0	cat	Kelly
207090506	ERY 5	0	cat	Kelly
207090506	ERY 10	0	cat	Kelly
207090506	STR 20	2	cat	Kelly
207090506	STR 40	2	cat	Kelly
207090506	STR 60	1	cat	Kelly
207090506	STR 80	0	cat	Kelly
207090506	OTC 20	0	cat	Kelly
207090506	OTC 40	0	cat	Kelly
207090506	OTC 60	0	cat	Kelly
207090506	OTC 80	0	cat	Kelly
207090506	CTC 20	0	cat	Kelly
207090506	CTC 40	0	cat	Kelly
207090506	CTC 60	0	cat	Kelly
207090506	CTC 80	0	cat	Kelly
208090506	VAN 1	2	cat	Kelly
208090506	VAN 3	0	cat	Kelly
208090506	VAN 5	0	cat	Kelly
208090506	VAN 10	0	cat	Kelly
208090506	ERY 1	0	cat	Kelly
208090506	ERY 3	0	cat	Kelly
208090506	ERY 5	0	cat	Kelly
208090506	ERY 10	0	cat	Kelly
208090506	STR 20	2	cat	Kelly
208090506	STR 40	2	cat	Kelly
208090506	STR 60	1	cat	Kelly
208090506	STR 80	0	cat	Kelly

Isolate	Antibiotic	Score	Source	Location
208090506	OTC 20	0	cat	Kelly
208090506	OTC 40	0	cat	Kelly
208090506	OTC 60	0	cat	Kelly
208090506	OTC 80	0	cat	Kelly
208090506	CTC 20	0	cat	Kelly
208090506	CTC 40	0	cat	Kelly
208090506	CTC 60	0	cat	Kelly
208090506	CTC 80	0	cat	Kelly
209090506	VAN 1	2	cat	Kelly
209090506	VAN 3	0	cat	Kelly
209090506	VAN 5	0	cat	Kelly
209090506	VAN 10	0	cat	Kelly
209090506	ERY 1	0	cat	Kelly
209090506	ERY 3	0	cat	Kelly
209090506	ERY 5	0	cat	Kelly
209090506	ERY 10	0	cat	Kelly
209090506	STR 20	2	cat	Kelly
209090506	STR 40	2	cat	Kelly
209090506	STR 60	1	cat	Kelly
209090506	STR 80	0	cat	Kelly
209090506	OTC 20	0	cat	Kelly
209090506	OTC 40	0	cat	Kelly
209090506	OTC 60	0	cat	Kelly
209090506	OTC 80	0	cat	Kelly
209090506	CTC 20	0	cat	Kelly
209090506	CTC 40	0	cat	Kelly
209090506	CTC 60	0	cat	Kelly
209090506	CTC 80	0	cat	Kelly
211090506	VAN 1	2	cat	Kelly
211090506	VAN 3	0	cat	Kelly
211090506	VAN 5	0	cat	Kelly
211090506	VAN 10	0	cat	Kelly
211090506	ERY 1	0	cat	Kelly
211090506	ERY 3	0	cat	Kelly
211090506	ERY 5	0	cat	Kelly
211090506	ERY 10	0	cat	Kelly
211090506	STR 20	2	cat	Kelly
211090506	STR 40	2	cat	Kelly
211090506	STR 60	1	cat	Kelly
211090506	STR 80	0	cat	Kelly
211090506	OTC 20	0	cat	Kelly
211090506	OTC 40	0	cat	Kelly
211090506	OTC 60	0	cat	Kelly
211090506	OTC 80	0	cat	Kelly

Isolate	Antibiotic	Score	Source	Location
211090506	CTC 20	0	cat	Kelly
211090506	CTC 40	0	cat	Kelly
211090506	CTC 60	0	cat	Kelly
211090506	CTC 80	0	cat	Kelly
212090506	VAN 1	2	cat	Kelly
212090506	VAN 3	0	cat	Kelly
212090506	VAN 5	0	cat	Kelly
212090506	VAN 10	0	cat	Kelly
212090506	ERY 1	0	cat	Kelly
212090506	ERY 3	0	cat	Kelly
212090506	ERY 5	0	cat	Kelly
212090506	ERY 10	0	cat	Kelly
212090506	STR 20	2	cat	Kelly
212090506	STR 40	2	cat	Kelly
212090506	STR 60	1	cat	Kelly
212090506	STR 80	0	cat	Kelly
212090506	OTC 20	0	cat	Kelly
212090506	OTC 40	0	cat	Kelly
212090506	OTC 60	0	cat	Kelly
212090506	OTC 80	0	cat	Kelly
212090506	CTC 20	0	cat	Kelly
212090506	CTC 40	0	cat	Kelly
212090506	CTC 60	0	cat	Kelly
212090506	CTC 80	0	cat	Kelly
213090506	VAN 1	2	cat	Kelly
213090506	VAN 3	0	cat	Kelly
213090506	VAN 5	0	cat	Kelly
213090506	VAN 10	0	cat	Kelly
213090506	ERY 1	0	cat	Kelly
213090506	ERY 3	0	cat	Kelly
213090506	ERY 5	0	cat	Kelly
213090506	ERY 10	0	cat	Kelly
213090506	STR 20	2	cat	Kelly
213090506	STR 40	2	cat	Kelly
213090506	STR 60	1	cat	Kelly
213090506	STR 80	0	cat	Kelly
213090506	OTC 20	0	cat	Kelly
213090506	OTC 40	0	cat	Kelly
213090506	OTC 60	0	cat	Kelly
213090506	OTC 80	0	cat	Kelly
213090506	CTC 20	0	cat	Kelly
213090506	CTC 40	0	cat	Kelly
213090506	CTC 60	0	cat	Kelly
213090506	CTC 80	0	cat	Kelly

Isolate	Antibiotic	Score	Source	Location
214090506	VAN 1	2	cat	Kelly
214090506	VAN 3	0	cat	Kelly
214090506	VAN 5	0	cat	Kelly
214090506	VAN 10	0	cat	Kelly
214090506	ERY 1	0	cat	Kelly
214090506	ERY 3	0	cat	Kelly
214090506	ERY 5	0	cat	Kelly
214090506	ERY 10	0	cat	Kelly
214090506	STR 20	2	cat	Kelly
214090506	STR 40	2	cat	Kelly
214090506	STR 60	1	cat	Kelly
214090506	STR 80	0	cat	Kelly
214090506	OTC 20	0	cat	Kelly
214090506	OTC 40	0	cat	Kelly
214090506	OTC 60	0	cat	Kelly
214090506	OTC 80	0	cat	Kelly
214090506	CTC 20	0	cat	Kelly
214090506	CTC 40	0	cat	Kelly
214090506	CTC 60	0	cat	Kelly
214090506	CTC 80	0	cat	Kelly
215090506	VAN 1	2	cat	Kelly
215090506	VAN 3	0	cat	Kelly
215090506	VAN 5	0	cat	Kelly
215090506	VAN 10	0	cat	Kelly
215090506	ERY 1	0	cat	Kelly
215090506	ERY 3	0	cat	Kelly
215090506	ERY 5	0	cat	Kelly
215090506	ERY 10	0	cat	Kelly
215090506	STR 20	2	cat	Kelly
215090506	STR 40	2	cat	Kelly
215090506	STR 60	1	cat	Kelly
215090506	STR 80	0	cat	Kelly
215090506	OTC 20	0	cat	Kelly
215090506	OTC 40	0	cat	Kelly
215090506	OTC 60	0	cat	Kelly
215090506	OTC 80	0	cat	Kelly
215090506	CTC 20	0	cat	Kelly
215090506	CTC 40	0	cat	Kelly
215090506	CTC 60	0	cat	Kelly
215090506	CTC 80	0	cat	Kelly
216090506	VAN 1	2	cat	Kelly
216090506	VAN 3	0	cat	Kelly
216090506	VAN 5	0	cat	Kelly
216090506	VAN 10	0	cat	Kelly

Isolate	Antibiotic	Score	Source	Location
216090506	ERY 1	0	cat	Kelly
216090506	ERY 3	0	cat	Kelly
216090506	ERY 5	0	cat	Kelly
216090506	ERY 10	0	cat	Kelly
216090506	STR 20	2	cat	Kelly
216090506	STR 40	2	cat	Kelly
216090506	STR 60	1	cat	Kelly
216090506	STR 80	0	cat	Kelly
216090506	OTC 20	0	cat	Kelly
216090506	OTC 40	0	cat	Kelly
216090506	OTC 60	0	cat	Kelly
216090506	OTC 80	0	cat	Kelly
216090506	CTC 20	0	cat	Kelly
216090506	CTC 40	0	cat	Kelly
216090506	CTC 60	0	cat	Kelly
216090506	CTC 80	0	cat	Kelly
217090506	VAN 1	2	cat	Kelly
217090506	VAN 3	0	cat	Kelly
217090506	VAN 5	0	cat	Kelly
217090506	VAN 10	0	cat	Kelly
217090506	ERY 1	0	cat	Kelly
217090506	ERY 3	0	cat	Kelly
217090506	ERY 5	0	cat	Kelly
217090506	ERY 10	0	cat	Kelly
217090506	STR 20	2	cat	Kelly
217090506	STR 40	2	cat	Kelly
217090506	STR 60	1	cat	Kelly
217090506	STR 80	0	cat	Kelly
217090506	OTC 20	0	cat	Kelly
217090506	OTC 40	0	cat	Kelly
217090506	OTC 60	0	cat	Kelly
217090506	OTC 80	0	cat	Kelly
217090506	CTC 20	0	cat	Kelly
217090506	CTC 40	0	cat	Kelly
217090506	CTC 60	0	cat	Kelly
217090506	CTC 80	0	cat	Kelly
218090506	VAN 1	2	cat	Kelly
218090506	VAN 3	0	cat	Kelly
218090506	VAN 5	0	cat	Kelly
218090506	VAN 10	0	cat	Kelly
218090506	ERY 1	0	cat	Kelly
218090506	ERY 3	0	cat	Kelly
218090506	ERY 5	0	cat	Kelly
218090506	ERY 10	0	cat	Kelly

Isolate	Antibiotic	Score	Source	Location
218090506	STR 20	0	cat	Kelly
218090506	STR 40	0	cat	Kelly
218090506	STR 60	0	cat	Kelly
218090506	STR 80	0	cat	Kelly
218090506	OTC 20	0	cat	Kelly
218090506	OTC 40	0	cat	Kelly
218090506	OTC 60	0	cat	Kelly
218090506	OTC 80	0	cat	Kelly
218090506	CTC 20	0	cat	Kelly
218090506	CTC 40	0	cat	Kelly
218090506	CTC 60	0	cat	Kelly
218090506	CTC 80	0	cat	Kelly
219090506	VAN 1	2	cat	Kelly
219090506	VAN 3	0	cat	Kelly
219090506	VAN 5	0	cat	Kelly
219090506	VAN 10	0	cat	Kelly
219090506	ERY 1	0	cat	Kelly
219090506	ERY 3	0	cat	Kelly
219090506	ERY 5	0	cat	Kelly
219090506	ERY 10	0	cat	Kelly
219090506	STR 20	2	cat	Kelly
219090506	STR 40	2	cat	Kelly
219090506	STR 60	1	cat	Kelly
219090506	STR 80	0	cat	Kelly
219090506	OTC 20	0	cat	Kelly
219090506	OTC 40	0	cat	Kelly
219090506	OTC 60	0	cat	Kelly
219090506	OTC 80	0	cat	Kelly
219090506	CTC 20	0	cat	Kelly
219090506	CTC 40	0	cat	Kelly
219090506	CTC 60	0	cat	Kelly
219090506	CTC 80	0	cat	Kelly
220090506	VAN 1	2	cat	Kelly
220090506	VAN 3	0	cat	Kelly
220090506	VAN 5	0	cat	Kelly
220090506	VAN 10	0	cat	Kelly
220090506	ERY 1	0	cat	Kelly
220090506	ERY 3	0	cat	Kelly
220090506	ERY 5	0	cat	Kelly
220090506	ERY 10	0	cat	Kelly
220090506	STR 20	2	cat	Kelly
220090506	STR 40	2	cat	Kelly
220090506	STR 60	1	cat	Kelly
220090506	STR 80	0	cat	Kelly

Isolate	Antibiotic	Score	Source	Location
220090506	OTC 20	0	cat	Kelly
220090506	OTC 40	0	cat	Kelly
220090506	OTC 60	0	cat	Kelly
220090506	OTC 80	0	cat	Kelly
220090506	CTC 20	0	cat	Kelly
220090506	CTC 40	0	cat	Kelly
220090506	CTC 60	0	cat	Kelly
220090506	CTC 80	0	cat	Kelly
301090506	VAN 1	0	cat	Doc
301090506	VAN 3	0	cat	Doc
301090506	VAN 5	0	cat	Doc
301090506	VAN 10	0	cat	Doc
301090506	ERY 1	0	cat	Doc
301090506	ERY 3	0	cat	Doc
301090506	ERY 5	0	cat	Doc
301090506	ERY 10	0	cat	Doc
301090506	STR 20	0	cat	Doc
301090506	STR 40	0	cat	Doc
301090506	STR 60	0	cat	Doc
301090506	STR 80	0	cat	Doc
301090506	OTC 20	0	cat	Doc
301090506	OTC 40	0	cat	Doc
301090506	OTC 60	0	cat	Doc
301090506	OTC 80	0	cat	Doc
301090506	CTC 20	0	cat	Doc
301090506	CTC 40	0	cat	Doc
301090506	CTC 60	0	cat	Doc
301090506	CTC 80	0	cat	Doc
302090506	VAN 1	2	cat	Doc
302090506	VAN 3	0	cat	Doc
302090506	VAN 5	0	cat	Doc
302090506	VAN 10	0	cat	Doc
302090506	ERY 1	2	cat	Doc
302090506	ERY 3	1	cat	Doc
302090506	ERY 5	0	cat	Doc
302090506	ERY 10	0	cat	Doc
302090506	STR 20	1	cat	Doc
302090506	STR 40	0	cat	Doc
302090506	STR 60	0	cat	Doc
302090506	STR 80	0	cat	Doc
302090506	OTC 20	0	cat	Doc
302090506	OTC 40	0	cat	Doc
302090506	OTC 60	0	cat	Doc
302090506	OTC 80	0	cat	Doc

Isolate	Antibiotic	Score	Source	Location
302090506	CTC 20	0	cat	Doc
302090506	CTC 40	0	cat	Doc
302090506	CTC 60	0	cat	Doc
302090506	CTC 80	0	cat	Doc
503090506	VAN 1	2	dog	Doc
503090506	VAN 3	0	dog	Doc
503090506	VAN 5	0	dog	Doc
503090506	VAN 10	0	dog	Doc
503090506	ERY 1	0	dog	Doc
503090506	ERY 3	0	dog	Doc
503090506	ERY 5	0	dog	Doc
503090506	ERY 10	0	dog	Doc
503090506	STR 20	2	dog	Doc
503090506	STR 40	2	dog	Doc
503090506	STR 60	1	dog	Doc
503090506	STR 80	0	dog	Doc
503090506	OTC 20	0	dog	Doc
503090506	OTC 40	0	dog	Doc
503090506	OTC 60	0	dog	Doc
503090506	OTC 80	0	dog	Doc
503090506	CTC 20	0	dog	Doc
503090506	CTC 40	0	dog	Doc
503090506	CTC 60	0	dog	Doc
503090506	CTC 80	0	dog	Doc
507090506	VAN 1	2	dog	Doc
507090506	VAN 3	0	dog	Doc
507090506	VAN 5	0	dog	Doc
507090506	VAN 10	0	dog	Doc
507090506	ERY 1	0	dog	Doc
507090506	ERY 3	0	dog	Doc
507090506	ERY 5	0	dog	Doc
507090506	ERY 10	0	dog	Doc
507090506	STR 20	2	dog	Doc
507090506	STR 40	2	dog	Doc
507090506	STR 60	1	dog	Doc
507090506	STR 80	0	dog	Doc
507090506	OTC 20	0	dog	Doc
507090506	OTC 40	0	dog	Doc
507090506	OTC 60	0	dog	Doc
507090506	OTC 80	0	dog	Doc
507090506	CTC 20	0	dog	Doc
507090506	CTC 40	0	dog	Doc
507090506	CTC 60	0	dog	Doc
507090506	CTC 80	0	dog	Doc

Isolate	Antibiotic	Score	Source	Location
509090506	VAN 1	2	dog	Doc
509090506	VAN 3	2	dog	Doc
509090506	VAN 5	1	dog	Doc
509090506	VAN 10	0	dog	Doc
509090506	ERY 1	0	dog	Doc
509090506	ERY 3	0	dog	Doc
509090506	ERY 5	0	dog	Doc
509090506	ERY 10	0	dog	Doc
509090506	STR 20	1	dog	Doc
509090506	STR 40	0	dog	Doc
509090506	STR 60	0	dog	Doc
509090506	STR 80	0	dog	Doc
509090506	OTC 20	2	dog	Doc
509090506	OTC 40	2	dog	Doc
509090506	OTC 60	2	dog	Doc
509090506	OTC 80	2	dog	Doc
509090506	CTC 20	2	dog	Doc
509090506	CTC 40	2	dog	Doc
509090506	CTC 60	2	dog	Doc
509090506	CTC 80	2	dog	Doc
601090506	VAN 1	2	dog	Barkley
601090506	VAN 3	0	dog	Barkley
601090506	VAN 5	0	dog	Barkley
601090506	VAN 10	0	dog	Barkley
601090506	ERY 1	1	dog	Barkley
601090506	ERY 3	0	dog	Barkley
601090506	ERY 5	0	dog	Barkley
601090506	ERY 10	0	dog	Barkley
601090506	STR 20	2	dog	Barkley
601090506	STR 40	2	dog	Barkley
601090506	STR 60	1	dog	Barkley
601090506	STR 80	0	dog	Barkley
601090506	OTC 20	2	dog	Barkley
601090506	OTC 40	2	dog	Barkley
601090506	OTC 60	2	dog	Barkley
601090506	OTC 80	1	dog	Barkley
601090506	CTC 20	2	dog	Barkley
601090506	CTC 40	2	dog	Barkley
601090506	CTC 60	2	dog	Barkley
601090506	CTC 80	2	dog	Barkley
602090506	VAN 1	2	dog	Barkley
602090506	VAN 3	0	dog	Barkley
602090506	VAN 5	0	dog	Barkley
602090506	VAN 10	0	dog	Barkley

Isolate	Antibiotic	Score	Source	Location
602090506	ERY 1	1	dog	Barkley
602090506	ERY 3	0	dog	Barkley
602090506	ERY 5	0	dog	Barkley
602090506	ERY 10	0	dog	Barkley
602090506	STR 20	2	dog	Barkley
602090506	STR 40	2	dog	Barkley
602090506	STR 60	1	dog	Barkley
602090506	STR 80	0	dog	Barkley
602090506	OTC 20	2	dog	Barkley
602090506	OTC 40	2	dog	Barkley
602090506	OTC 60	2	dog	Barkley
602090506	OTC 80	1	dog	Barkley
602090506	CTC 20	2	dog	Barkley
602090506	CTC 40	2	dog	Barkley
602090506	CTC 60	2	dog	Barkley
602090506	CTC 80	2	dog	Barkley
603090506	VAN 1	2	dog	Barkley
603090506	VAN 3	0	dog	Barkley
603090506	VAN 5	0	dog	Barkley
603090506	VAN 10	0	dog	Barkley
603090506	ERY 1	1	dog	Barkley
603090506	ERY 3	0	dog	Barkley
603090506	ERY 5	0	dog	Barkley
603090506	ERY 10	0	dog	Barkley
603090506	STR 20	2	dog	Barkley
603090506	STR 40	2	dog	Barkley
603090506	STR 60	1	dog	Barkley
603090506	STR 80	0	dog	Barkley
603090506	OTC 20	2	dog	Barkley
603090506	OTC 40	2	dog	Barkley
603090506	OTC 60	2	dog	Barkley
603090506	OTC 80	1	dog	Barkley
603090506	CTC 20	2	dog	Barkley
603090506	CTC 40	2	dog	Barkley
603090506	CTC 60	2	dog	Barkley
603090506	CTC 80	2	dog	Barkley
604090506	VAN 1	2	dog	Barkley
604090506	VAN 3	0	dog	Barkley
604090506	VAN 5	0	dog	Barkley
604090506	VAN 10	0	dog	Barkley
604090506	ERY 1	1	dog	Barkley
604090506	ERY 3	0	dog	Barkley
604090506	ERY 5	0	dog	Barkley
604090506	ERY 10	0	dog	Barkley

Isolate	Antibiotic	Score	Source	Location
604090506	STR 20	2	dog	Barkley
604090506	STR 40	2	dog	Barkley
604090506	STR 60	1	dog	Barkley
604090506	STR 80	0	dog	Barkley
604090506	OTC 20	2	dog	Barkley
604090506	OTC 40	2	dog	Barkley
604090506	OTC 60	2	dog	Barkley
604090506	OTC 80	1	dog	Barkley
604090506	CTC 20	2	dog	Barkley
604090506	CTC 40	2	dog	Barkley
604090506	CTC 60	2	dog	Barkley
604090506	CTC 80	2	dog	Barkley
605090506	VAN 1	2	dog	Barkley
605090506	VAN 3	0	dog	Barkley
605090506	VAN 5	0	dog	Barkley
605090506	VAN 10	0	dog	Barkley
605090506	ERY 1	1	dog	Barkley
605090506	ERY 3	0	dog	Barkley
605090506	ERY 5	0	dog	Barkley
605090506	ERY 10	0	dog	Barkley
605090506	STR 20	2	dog	Barkley
605090506	STR 40	2	dog	Barkley
605090506	STR 60	0	dog	Barkley
605090506	STR 80	0	dog	Barkley
605090506	OTC 20	2	dog	Barkley
605090506	OTC 40	2	dog	Barkley
605090506	OTC 60	2	dog	Barkley
605090506	OTC 80	1	dog	Barkley
605090506	CTC 20	2	dog	Barkley
605090506	CTC 40	2	dog	Barkley
605090506	CTC 60	2	dog	Barkley
605090506	CTC 80	1	dog	Barkley
606090506	VAN 1	2	dog	Barkley
606090506	VAN 3	0	dog	Barkley
606090506	VAN 5	0	dog	Barkley
606090506	VAN 10	0	dog	Barkley
606090506	ERY 1	1	dog	Barkley
606090506	ERY 3	0	dog	Barkley
606090506	ERY 5	0	dog	Barkley
606090506	ERY 10	0	dog	Barkley
606090506	STR 20	2	dog	Barkley
606090506	STR 40	2	dog	Barkley
606090506	STR 60	1	dog	Barkley
606090506	STR 80	0	dog	Barkley

Isolate	Antibiotic	Score	Source	Location
606090506	OTC 20	2	dog	Barkley
606090506	OTC 40	2	dog	Barkley
606090506	OTC 60	2	dog	Barkley
606090506	OTC 80	1	dog	Barkley
606090506	CTC 20	2	dog	Barkley
606090506	CTC 40	2	dog	Barkley
606090506	CTC 60	2	dog	Barkley
606090506	CTC 80	2	dog	Barkley
607090506	VAN 1	2	dog	Barkley
607090506	VAN 3	0	dog	Barkley
607090506	VAN 5	0	dog	Barkley
607090506	VAN 10	0	dog	Barkley
607090506	ERY 1	1	dog	Barkley
607090506	ERY 3	0	dog	Barkley
607090506	ERY 5	0	dog	Barkley
607090506	ERY 10	0	dog	Barkley
607090506	STR 20	2	dog	Barkley
607090506	STR 40	2	dog	Barkley
607090506	STR 60	1	dog	Barkley
607090506	STR 80	0	dog	Barkley
607090506	OTC 20	2	dog	Barkley
607090506	OTC 40	2	dog	Barkley
607090506	OTC 60	2	dog	Barkley
607090506	OTC 80	1	dog	Barkley
607090506	CTC 20	2	dog	Barkley
607090506	CTC 40	2	dog	Barkley
607090506	CTC 60	2	dog	Barkley
607090506	CTC 80	2	dog	Barkley
609090506	VAN 1	2	dog	Barkley
609090506	VAN 3	0	dog	Barkley
609090506	VAN 5	0	dog	Barkley
609090506	VAN 10	0	dog	Barkley
609090506	ERY 1	1	dog	Barkley
609090506	ERY 3	0	dog	Barkley
609090506	ERY 5	0	dog	Barkley
609090506	ERY 10	0	dog	Barkley
609090506	STR 20	2	dog	Barkley
609090506	STR 40	2	dog	Barkley
609090506	STR 60	1	dog	Barkley
609090506	STR 80	0	dog	Barkley
609090506	OTC 20	2	dog	Barkley
609090506	OTC 40	2	dog	Barkley
609090506	OTC 60	2	dog	Barkley
609090506	OTC 80	1	dog	Barkley

Isolate	Antibiotic	Score	Source	Location
609090506	CTC 20	2	dog	Barkley
609090506	CTC 40	2	dog	Barkley
609090506	CTC 60	2	dog	Barkley
609090506	CTC 80	2	dog	Barkley
610090506	VAN 1	2	dog	Barkley
610090506	VAN 3	0	dog	Barkley
610090506	VAN 5	0	dog	Barkley
610090506	VAN 10	0	dog	Barkley
610090506	ERY 1	1	dog	Barkley
610090506	ERY 3	0	dog	Barkley
610090506	ERY 5	0	dog	Barkley
610090506	ERY 10	0	dog	Barkley
610090506	STR 20	2	dog	Barkley
610090506	STR 40	2	dog	Barkley
610090506	STR 60	1	dog	Barkley
610090506	STR 80	0	dog	Barkley
610090506	OTC 20	2	dog	Barkley
610090506	OTC 40	2	dog	Barkley
610090506	OTC 60	2	dog	Barkley
610090506	OTC 80	1	dog	Barkley
610090506	CTC 20	2	dog	Barkley
610090506	CTC 40	2	dog	Barkley
610090506	CTC 60	2	dog	Barkley
610090506	CTC 80	2	dog	Barkley
611090506	VAN 1	2	dog	Barkley
611090506	VAN 3	0	dog	Barkley
611090506	VAN 5	0	dog	Barkley
611090506	VAN 10	0	dog	Barkley
611090506	ERY 1	1	dog	Barkley
611090506	ERY 3	0	dog	Barkley
611090506	ERY 5	0	dog	Barkley
611090506	ERY 10	0	dog	Barkley
611090506	STR 20	2	dog	Barkley
611090506	STR 40	2	dog	Barkley
611090506	STR 60	1	dog	Barkley
611090506	STR 80	0	dog	Barkley
611090506	OTC 20	2	dog	Barkley
611090506	OTC 40	2	dog	Barkley
611090506	OTC 60	2	dog	Barkley
611090506	OTC 80	1	dog	Barkley
611090506	CTC 20	2	dog	Barkley
611090506	CTC 40	2	dog	Barkley
611090506	CTC 60	2	dog	Barkley
611090506	CTC 80	2	dog	Barkley

Isolate	Antibiotic	Score	Source	Location
612090506	VAN 1	2	dog	Barkley
612090506	VAN 3	0	dog	Barkley
612090506	VAN 5	0	dog	Barkley
612090506	VAN 10	0	dog	Barkley
612090506	ERY 1	1	dog	Barkley
612090506	ERY 3	0	dog	Barkley
612090506	ERY 5	0	dog	Barkley
612090506	ERY 10	0	dog	Barkley
612090506	STR 20	2	dog	Barkley
612090506	STR 40	2	dog	Barkley
612090506	STR 60	1	dog	Barkley
612090506	STR 80	0	dog	Barkley
612090506	OTC 20	2	dog	Barkley
612090506	OTC 40	2	dog	Barkley
612090506	OTC 60	2	dog	Barkley
612090506	OTC 80	1	dog	Barkley
612090506	CTC 20	2	dog	Barkley
612090506	CTC 40	2	dog	Barkley
612090506	CTC 60	2	dog	Barkley
612090506	CTC 80	2	dog	Barkley
613090506	VAN 1	2	dog	Barkley
613090506	VAN 3	0	dog	Barkley
613090506	VAN 5	0	dog	Barkley
613090506	VAN 10	0	dog	Barkley
613090506	ERY 1	1	dog	Barkley
613090506	ERY 3	0	dog	Barkley
613090506	ERY 5	0	dog	Barkley
613090506	ERY 10	0	dog	Barkley
613090506	STR 20	2	dog	Barkley
613090506	STR 40	2	dog	Barkley
613090506	STR 60	1	dog	Barkley
613090506	STR 80	1	dog	Barkley
613090506	OTC 20	2	dog	Barkley
613090506	OTC 40	2	dog	Barkley
613090506	OTC 60	2	dog	Barkley
613090506	OTC 80	0	dog	Barkley
613090506	CTC 20	2	dog	Barkley
613090506	CTC 40	2	dog	Barkley
613090506	CTC 60	2	dog	Barkley
613090506	CTC 80	0	dog	Barkley
614090506	VAN 1	0	dog	Barkley
614090506	VAN 3	0	dog	Barkley
614090506	VAN 5	0	dog	Barkley
614090506	VAN 10	0	dog	Barkley

Isolate	Antibiotic	Score	Source	Location
614090506	ERY 1	0	dog	Barkley
614090506	ERY 3	0	dog	Barkley
614090506	ERY 5	0	dog	Barkley
614090506	ERY 10	0	dog	Barkley
614090506	STR 20	2	dog	Barkley
614090506	STR 40	1	dog	Barkley
614090506	STR 60	0	dog	Barkley
614090506	STR 80	0	dog	Barkley
614090506	OTC 20	2	dog	Barkley
614090506	OTC 40	2	dog	Barkley
614090506	OTC 60	2	dog	Barkley
614090506	OTC 80	1	dog	Barkley
614090506	CTC 20	2	dog	Barkley
614090506	CTC 40	2	dog	Barkley
614090506	CTC 60	2	dog	Barkley
614090506	CTC 80	1	dog	Barkley
615090506	VAN 1	2	dog	Barkley
615090506	VAN 3	0	dog	Barkley
615090506	VAN 5	0	dog	Barkley
615090506	VAN 10	0	dog	Barkley
615090506	ERY 1	1	dog	Barkley
615090506	ERY 3	0	dog	Barkley
615090506	ERY 5	0	dog	Barkley
615090506	ERY 10	0	dog	Barkley
615090506	STR 20	2	dog	Barkley
615090506	STR 40	2	dog	Barkley
615090506	STR 60	1	dog	Barkley
615090506	STR 80	0	dog	Barkley
615090506	OTC 20	2	dog	Barkley
615090506	OTC 40	2	dog	Barkley
615090506	OTC 60	2	dog	Barkley
615090506	OTC 80	1	dog	Barkley
615090506	CTC 20	2	dog	Barkley
615090506	CTC 40	2	dog	Barkley
615090506	CTC 60	2	dog	Barkley
615090506	CTC 80	2	dog	Barkley
616090506	VAN 1	0	dog	Barkley
616090506	VAN 3	0	dog	Barkley
616090506	VAN 5	0	dog	Barkley
616090506	VAN 10	0	dog	Barkley
616090506	ERY 1	0	dog	Barkley
616090506	ERY 3	0	dog	Barkley
616090506	ERY 5	0	dog	Barkley
616090506	ERY 10	0	dog	Barkley

Isolate	Antibiotic	Score	Source	Location
616090506	STR 20	2	dog	Barkley
616090506	STR 40	1	dog	Barkley
616090506	STR 60	0	dog	Barkley
616090506	STR 80	0	dog	Barkley
616090506	OTC 20	2	dog	Barkley
616090506	OTC 40	2	dog	Barkley
616090506	OTC 60	2	dog	Barkley
616090506	OTC 80	1	dog	Barkley
616090506	CTC 20	2	dog	Barkley
616090506	CTC 40	2	dog	Barkley
616090506	CTC 60	2	dog	Barkley
616090506	CTC 80	1	dog	Barkley
618090506	VAN 1	0	dog	Barkley
618090506	VAN 3	0	dog	Barkley
618090506	VAN 5	0	dog	Barkley
618090506	VAN 10	0	dog	Barkley
618090506	ERY 1	0	dog	Barkley
618090506	ERY 3	0	dog	Barkley
618090506	ERY 5	0	dog	Barkley
618090506	ERY 10	0	dog	Barkley
618090506	STR 20	2	dog	Barkley
618090506	STR 40	1	dog	Barkley
618090506	STR 60	0	dog	Barkley
618090506	STR 80	0	dog	Barkley
618090506	OTC 20	2	dog	Barkley
618090506	OTC 40	2	dog	Barkley
618090506	OTC 60	2	dog	Barkley
618090506	OTC 80	1	dog	Barkley
618090506	CTC 20	2	dog	Barkley
618090506	CTC 40	2	dog	Barkley
618090506	CTC 60	2	dog	Barkley
618090506	CTC 80	1	dog	Barkley
704090506	VAN 1	2	dog	Beau
704090506	VAN 3	0	dog	Beau
704090506	VAN 5	0	dog	Beau
704090506	VAN 10	0	dog	Beau
704090506	ERY 1	1	dog	Beau
704090506	ERY 3	0	dog	Beau
704090506	ERY 5	0	dog	Beau
704090506	ERY 10	0	dog	Beau
704090506	STR 20	2	dog	Beau
704090506	STR 40	2	dog	Beau
704090506	STR 60	1	dog	Beau
704090506	STR 80	0	dog	Beau

Isolate	Antibiotic	Score	Source	Location
704090506	OTC 20	2	dog	Beau
704090506	OTC 40	2	dog	Beau
704090506	OTC 60	2	dog	Beau
704090506	OTC 80	1	dog	Beau
704090506	CTC 20	2	dog	Beau
704090506	CTC 40	2	dog	Beau
704090506	CTC 60	2	dog	Beau
704090506	CTC 80	2	dog	Beau
705090506	VAN 1	2	dog	Beau
705090506	VAN 3	0	dog	Beau
705090506	VAN 5	0	dog	Beau
705090506	VAN 10	0	dog	Beau
705090506	ERY 1	1	dog	Beau
705090506	ERY 3	0	dog	Beau
705090506	ERY 5	0	dog	Beau
705090506	ERY 10	0	dog	Beau
705090506	STR 20	2	dog	Beau
705090506	STR 40	2	dog	Beau
705090506	STR 60	1	dog	Beau
705090506	STR 80	0	dog	Beau
705090506	OTC 20	2	dog	Beau
705090506	OTC 40	2	dog	Beau
705090506	OTC 60	2	dog	Beau
705090506	OTC 80	1	dog	Beau
705090506	CTC 20	2	dog	Beau
705090506	CTC 40	2	dog	Beau
705090506	CTC 60	2	dog	Beau
705090506	CTC 80	2	dog	Beau
706090506	VAN 1	2	dog	Beau
706090506	VAN 3	0	dog	Beau
706090506	VAN 5	0	dog	Beau
706090506	VAN 10	0	dog	Beau
706090506	ERY 1	1	dog	Beau
706090506	ERY 3	0	dog	Beau
706090506	ERY 5	0	dog	Beau
706090506	ERY 10	0	dog	Beau
706090506	STR 20	2	dog	Beau
706090506	STR 40	2	dog	Beau
706090506	STR 60	1	dog	Beau
706090506	STR 80	0	dog	Beau
706090506	OTC 20	2	dog	Beau
706090506	OTC 40	2	dog	Beau
706090506	OTC 60	2	dog	Beau
706090506	OTC 80	1	dog	Beau

Isolate	Antibiotic	Score	Source	Location
706090506	CTC 20	2	dog	Beau
706090506	CTC 40	2	dog	Beau
706090506	CTC 60	2	dog	Beau
706090506	CTC 80	2	dog	Beau
101110306	VAN 1	0	WWTP	Brush
101110306	VAN 3	0	WWTP	Brush
101110306	VAN 5	0	WWTP	Brush
101110306	VAN 10	0	WWTP	Brush
101110306	ERY 1	2	WWTP	Brush
101110306	ERY 3	2	WWTP	Brush
101110306	ERY 5	2	WWTP	Brush
101110306	ERY 10	2	WWTP	Brush
101110306	STR 20	2	WWTP	Brush
101110306	STR 40	2	WWTP	Brush
101110306	STR 60	1	WWTP	Brush
101110306	STR 80	0	WWTP	Brush
101110306	OTC 20	2	WWTP	Brush
101110306	OTC 40	2	WWTP	Brush
101110306	OTC 60	2	WWTP	Brush
101110306	OTC 80	0	WWTP	Brush
101110306	CTC 20	2	WWTP	Brush
101110306	CTC 40	2	WWTP	Brush
101110306	CTC 60	2	WWTP	Brush
101110306	CTC 80	1	WWTP	Brush
102110306	VAN 1	2	WWTP	Brush
102110306	VAN 3	0	WWTP	Brush
102110306	VAN 5	0	WWTP	Brush
102110306	VAN 10	0	WWTP	Brush
102110306	ERY 1	1	WWTP	Brush
102110306	ERY 3	0	WWTP	Brush
102110306	ERY 5	0	WWTP	Brush
102110306	ERY 10	0	WWTP	Brush
102110306	STR 20	2	WWTP	Brush
102110306	STR 40	2	WWTP	Brush
102110306	STR 60	0	WWTP	Brush
102110306	STR 80	0	WWTP	Brush
102110306	OTC 20	2	WWTP	Brush
102110306	OTC 40	2	WWTP	Brush
102110306	OTC 60	2	WWTP	Brush
102110306	OTC 80	2	WWTP	Brush
102110306	CTC 20	2	WWTP	Brush
102110306	CTC 40	2	WWTP	Brush
102110306	CTC 60	2	WWTP	Brush
102110306	CTC 80	2	WWTP	Brush

Isolate	Antibiotic	Score	Source	Location
103110306	VAN 1	0	WWTP	Brush
103110306	VAN 3	0	WWTP	Brush
103110306	VAN 5	0	WWTP	Brush
103110306	VAN 10	0	WWTP	Brush
103110306	ERY 1	2	WWTP	Brush
103110306	ERY 3	2	WWTP	Brush
103110306	ERY 5	1	WWTP	Brush
103110306	ERY 10	0	WWTP	Brush
103110306	STR 20	2	WWTP	Brush
103110306	STR 40	0	WWTP	Brush
103110306	STR 60	0	WWTP	Brush
103110306	STR 80	0	WWTP	Brush
103110306	OTC 20	2	WWTP	Brush
103110306	OTC 40	2	WWTP	Brush
103110306	OTC 60	2	WWTP	Brush
103110306	OTC 80	1	WWTP	Brush
103110306	CTC 20	2	WWTP	Brush
103110306	CTC 40	2	WWTP	Brush
103110306	CTC 60	2	WWTP	Brush
103110306	CTC 80	2	WWTP	Brush
104110306	VAN 1	0	WWTP	Brush
104110306	VAN 3	0	WWTP	Brush
104110306	VAN 5	0	WWTP	Brush
104110306	VAN 10	0	WWTP	Brush
104110306	ERY 1	1	WWTP	Brush
104110306	ERY 3	2	WWTP	Brush
104110306	ERY 5	1	WWTP	Brush
104110306	ERY 10	0	WWTP	Brush
104110306	STR 20	1	WWTP	Brush
104110306	STR 40	0	WWTP	Brush
104110306	STR 60	0	WWTP	Brush
104110306	STR 80	0	WWTP	Brush
104110306	OTC 20	0	WWTP	Brush
104110306	OTC 40	0	WWTP	Brush
104110306	OTC 60	0	WWTP	Brush
104110306	OTC 80	0	WWTP	Brush
104110306	CTC 20	0	WWTP	Brush
104110306	CTC 40	0	WWTP	Brush
104110306	CTC 60	0	WWTP	Brush
104110306	CTC 80	0	WWTP	Brush
105110306	VAN 1	0	WWTP	Brush
105110306	VAN 3	0	WWTP	Brush
105110306	VAN 5	0	WWTP	Brush
105110306	VAN 10	0	WWTP	Brush

Isolate	Antibiotic	Score	Source	Location
105110306	ERY 1	2	WWTP	Brush
105110306	ERY 3	2	WWTP	Brush
105110306	ERY 5	2	WWTP	Brush
105110306	ERY 10	2	WWTP	Brush
105110306	STR 20	2	WWTP	Brush
105110306	STR 40	2	WWTP	Brush
105110306	STR 60	2	WWTP	Brush
105110306	STR 80	2	WWTP	Brush
105110306	OTC 20	0	WWTP	Brush
105110306	OTC 40	0	WWTP	Brush
105110306	OTC 60	0	WWTP	Brush
105110306	OTC 80	0	WWTP	Brush
105110306	CTC 20	0	WWTP	Brush
105110306	CTC 40	0	WWTP	Brush
105110306	CTC 60	0	WWTP	Brush
105110306	CTC 80	0	WWTP	Brush
106110306	VAN 1	0	WWTP	Brush
106110306	VAN 3	0	WWTP	Brush
106110306	VAN 5	0	WWTP	Brush
106110306	VAN 10	0	WWTP	Brush
106110306	ERY 1	2	WWTP	Brush
106110306	ERY 3	1	WWTP	Brush
106110306	ERY 5	0	WWTP	Brush
106110306	ERY 10	0	WWTP	Brush
106110306	STR 20	2	WWTP	Brush
106110306	STR 40	2	WWTP	Brush
106110306	STR 60	1	WWTP	Brush
106110306	STR 80	0	WWTP	Brush
106110306	OTC 20	0	WWTP	Brush
106110306	OTC 40	0	WWTP	Brush
106110306	OTC 60	0	WWTP	Brush
106110306	OTC 80	0	WWTP	Brush
106110306	CTC 20	0	WWTP	Brush
106110306	CTC 40	0	WWTP	Brush
106110306	CTC 60	0	WWTP	Brush
106110306	CTC 80	0	WWTP	Brush
107110306	VAN 1	0	WWTP	Brush
107110306	VAN 3	0	WWTP	Brush
107110306	VAN 5	0	WWTP	Brush
107110306	VAN 10	0	WWTP	Brush
107110306	ERY 1	0	WWTP	Brush
107110306	ERY 3	0	WWTP	Brush
107110306	ERY 5	0	WWTP	Brush
107110306	ERY 10	0	WWTP	Brush

Isolate	Antibiotic	Score	Source	Location
107110306	STR 20	2	WWTP	Brush
107110306	STR 40	0	WWTP	Brush
107110306	STR 60	0	WWTP	Brush
107110306	STR 80	0	WWTP	Brush
107110306	OTC 20	2	WWTP	Brush
107110306	OTC 40	2	WWTP	Brush
107110306	OTC 60	2	WWTP	Brush
107110306	OTC 80	2	WWTP	Brush
107110306	CTC 20	2	WWTP	Brush
107110306	CTC 40	2	WWTP	Brush
107110306	CTC 60	2	WWTP	Brush
107110306	CTC 80	2	WWTP	Brush
108110306	VAN 1	0	WWTP	Brush
108110306	VAN 3	0	WWTP	Brush
108110306	VAN 5	0	WWTP	Brush
108110306	VAN 10	0	WWTP	Brush
108110306	ERY 1	1	WWTP	Brush
108110306	ERY 3	0	WWTP	Brush
108110306	ERY 5	0	WWTP	Brush
108110306	ERY 10	0	WWTP	Brush
108110306	STR 20	2	WWTP	Brush
108110306	STR 40	2	WWTP	Brush
108110306	STR 60	1	WWTP	Brush
108110306	STR 80	1	WWTP	Brush
108110306	OTC 20	0	WWTP	Brush
108110306	OTC 40	0	WWTP	Brush
108110306	OTC 60	0	WWTP	Brush
108110306	OTC 80	0	WWTP	Brush
108110306	CTC 20	0	WWTP	Brush
108110306	CTC 40	0	WWTP	Brush
108110306	CTC 60	0	WWTP	Brush
108110306	CTC 80	0	WWTP	Brush
109110306	VAN 1	0	WWTP	Brush
109110306	VAN 3	0	WWTP	Brush
109110306	VAN 5	0	WWTP	Brush
109110306	VAN 10	0	WWTP	Brush
109110306	ERY 1	2	WWTP	Brush
109110306	ERY 3	2	WWTP	Brush
109110306	ERY 5	2	WWTP	Brush
109110306	ERY 10	2	WWTP	Brush
109110306	STR 20	2	WWTP	Brush
109110306	STR 40	1	WWTP	Brush
109110306	STR 60	1	WWTP	Brush
109110306	STR 80	0	WWTP	Brush

Isolate	Antibiotic	Score	Source	Location
109110306	OTC 20	2	WWTP	Brush
109110306	OTC 40	2	WWTP	Brush
109110306	OTC 60	2	WWTP	Brush
109110306	OTC 80	1	WWTP	Brush
109110306	CTC 20	2	WWTP	Brush
109110306	CTC 40	2	WWTP	Brush
109110306	CTC 60	2	WWTP	Brush
109110306	CTC 80	1	WWTP	Brush
110110306	VAN 1	1	WWTP	Brush
110110306	VAN 3	0	WWTP	Brush
110110306	VAN 5	0	WWTP	Brush
110110306	VAN 10	0	WWTP	Brush
110110306	ERY 1	0	WWTP	Brush
110110306	ERY 3	0	WWTP	Brush
110110306	ERY 5	0	WWTP	Brush
110110306	ERY 10	0	WWTP	Brush
110110306	STR 20	2	WWTP	Brush
110110306	STR 40	2	WWTP	Brush
110110306	STR 60	0	WWTP	Brush
110110306	STR 80	0	WWTP	Brush
110110306	OTC 20	2	WWTP	Brush
110110306	OTC 40	2	WWTP	Brush
110110306	OTC 60	2	WWTP	Brush
110110306	OTC 80	1	WWTP	Brush
110110306	CTC 20	2	WWTP	Brush
110110306	CTC 40	2	WWTP	Brush
110110306	CTC 60	2	WWTP	Brush
110110306	CTC 80	2	WWTP	Brush
201110306	VAN 1	1	WWTP	Brush
201110306	VAN 3	0	WWTP	Brush
201110306	VAN 5	0	WWTP	Brush
201110306	VAN 10	0	WWTP	Brush
201110306	ERY 1	1	WWTP	Brush
201110306	ERY 3	1	WWTP	Brush
201110306	ERY 5	0	WWTP	Brush
201110306	ERY 10	0	WWTP	Brush
201110306	STR 20	2	WWTP	Brush
201110306	STR 40	2	WWTP	Brush
201110306	STR 60	1	WWTP	Brush
201110306	STR 80	0	WWTP	Brush
201110306	OTC 20	2	WWTP	Brush
201110306	OTC 40	2	WWTP	Brush
201110306	OTC 60	2	WWTP	Brush
201110306	OTC 80	1	WWTP	Brush

Isolate	Antibiotic	Score	Source	Location
201110306	CTC 20	2	WWTP	Brush
201110306	CTC 40	2	WWTP	Brush
201110306	CTC 60	2	WWTP	Brush
201110306	CTC 80	2	WWTP	Brush

Table 15 Data from ARA Plate Number 3. The isolate column contains the identification number for each isolate processed. 101032706 means that isolate came from sample 1 and was the first isolate. The final 6 numbers are the date that sample was collected (i.e., March 27, 2006 = 032706). The antibiotic column contains the antibiotic and concentration used, in μg/ml. Vancomycin was represented by VAN, erythromycin was ERY, streptomycin was STR, oxytetracycline hydrochloride was OTC, and chlortetracycline hydrochloride was CTC. The growth of each isolate was scored as a 0, 1, or 2 in the score column. This was later converted to binary code, using only 0 or 1 (scores of 2 would become 1). The source column displays the origin of the samples. The location column indicated where the samples were from. Horse and cow samples were from S.C. (Sinking Creek). Cat and dog samples were collected from other laboratory personnel with pets. WWTP sample locations were recorded based on what treatment plant they came from.

Isolate	Antibiotic	Score	Source	Location
203110306	VAN 1	0	WWTP	Brush
203110306	VAN 3	0	WWTP	Brush
203110306	VAN 5	0	WWTP	Brush
203110306	VAN 10	0	WWTP	Brush
203110306	ERY 1	1	WWTP	Brush
203110306	ERY 3	1	WWTP	Brush
203110306	ERY 5	0	WWTP	Brush
203110306	ERY 10	0	WWTP	Brush
203110306	STR 20	2	WWTP	Brush
203110306	STR 40	1	WWTP	Brush
203110306	STR 60	0	WWTP	Brush
203110306	STR 80	0	WWTP	Brush
203110306	OTC 20	2	WWTP	Brush
203110306	OTC 40	2	WWTP	Brush
203110306	OTC 60	2	WWTP	Brush
203110306	OTC 80	0	WWTP	Brush
203110306	CTC 20	2	WWTP	Brush
203110306	CTC 40	2	WWTP	Brush
203110306	CTC 60	2	WWTP	Brush
203110306	CTC 80	2	WWTP	Brush

Isolate	Antibiotic	Score	Source	Location
204110306	VAN 1	0	WWTP	Brush
204110306	VAN 3	0	WWTP	Brush
204110306	VAN 5	0	WWTP	Brush
204110306	VAN 10	0	WWTP	Brush
204110306	ERY 1	2	WWTP	Brush
204110306	ERY 3	2	WWTP	Brush
204110306	ERY 5	2	WWTP	Brush
204110306	ERY 10	2	WWTP	Brush
204110306	STR 20	2	WWTP	Brush
204110306	STR 40	2	WWTP	Brush
204110306	STR 60	2	WWTP	Brush
204110306	STR 80	2	WWTP	Brush
204110306	OTC 20	2	WWTP	Brush
204110306	OTC 40	2	WWTP	Brush
204110306	OTC 60	1	WWTP	Brush
204110306	OTC 80	0	WWTP	Brush
204110306	CTC 20	2	WWTP	Brush
204110306	CTC 40	1	WWTP	Brush
204110306	CTC 60	1	WWTP	Brush
204110306	CTC 80	0	WWTP	Brush
205110306	VAN 1	0	WWTP	Brush
205110306	VAN 3	0	WWTP	Brush
205110306	VAN 5	0	WWTP	Brush
205110306	VAN 10	0	WWTP	Brush
205110306	ERY 1	0	WWTP	Brush
205110306	ERY 3	0	WWTP	Brush
205110306	ERY 5	0	WWTP	Brush
205110306	ERY 10	0	WWTP	Brush
205110306	STR 20	1	WWTP	Brush
205110306	STR 40	0	WWTP	Brush
205110306	STR 60	0	WWTP	Brush
205110306	STR 80	0	WWTP	Brush
205110306	OTC 20	0	WWTP	Brush
205110306	OTC 40	0	WWTP	Brush
205110306	OTC 60	0	WWTP	Brush
205110306	OTC 80	0	WWTP	Brush
205110306	CTC 20	0	WWTP	Brush
205110306	CTC 40	0	WWTP	Brush
205110306	CTC 60	0	WWTP	Brush
205110306	CTC 80	0	WWTP	Brush
206110306	VAN 1	0	WWTP	Brush
206110306	VAN 3	0	WWTP	Brush
206110306	VAN 5	0	WWTP	Brush
206110306	VAN 10	0	WWTP	Brush

Isolate	Antibiotic	Score	Source	Location
206110306	ERY 1	2	WWTP	Brush
206110306	ERY 3	2	WWTP	Brush
206110306	ERY 5	2	WWTP	Brush
206110306	ERY 10	2	WWTP	Brush
206110306	STR 20	2	WWTP	Brush
206110306	STR 40	2	WWTP	Brush
206110306	STR 60	1	WWTP	Brush
206110306	STR 80	0	WWTP	Brush
206110306	OTC 20	2	WWTP	Brush
206110306	OTC 40	2	WWTP	Brush
206110306	OTC 60	1	WWTP	Brush
206110306	OTC 80	0	WWTP	Brush
206110306	CTC 20	2	WWTP	Brush
206110306	CTC 40	2	WWTP	Brush
206110306	CTC 60	2	WWTP	Brush
206110306	CTC 80	1	WWTP	Brush
207110306	VAN 1	0	WWTP	Brush
207110306	VAN 3	0	WWTP	Brush
207110306	VAN 5	0	WWTP	Brush
207110306	VAN 10	0	WWTP	Brush
207110306	ERY 1	2	WWTP	Brush
207110306	ERY 3	2	WWTP	Brush
207110306	ERY 5	2	WWTP	Brush
207110306	ERY 10	2	WWTP	Brush
207110306	STR 20	2	WWTP	Brush
207110306	STR 40	2	WWTP	Brush
207110306	STR 60	1	WWTP	Brush
207110306	STR 80	0	WWTP	Brush
207110306	OTC 20	2	WWTP	Brush
207110306	OTC 40	2	WWTP	Brush
207110306	OTC 60	1	WWTP	Brush
207110306	OTC 80	0	WWTP	Brush
207110306	CTC 20	2	WWTP	Brush
207110306	CTC 40	2	WWTP	Brush
207110306	CTC 60	2	WWTP	Brush
207110306	CTC 80	1	WWTP	Brush
208110306	VAN 1	0	WWTP	Brush
208110306	VAN 3	0	WWTP	Brush
208110306	VAN 5	0	WWTP	Brush
208110306	VAN 10	0	WWTP	Brush
208110306	ERY 1	0	WWTP	Brush
208110306	ERY 3	0	WWTP	Brush
208110306	ERY 5	0	WWTP	Brush
208110306	ERY 10	0	WWTP	Brush

Isolate	Antibiotic	Score	Source	Location
208110306	STR 20	2	WWTP	Brush
208110306	STR 40	2	WWTP	Brush
208110306	STR 60	1	WWTP	Brush
208110306	STR 80	0	WWTP	Brush
208110306	OTC 20	0	WWTP	Brush
208110306	OTC 40	0	WWTP	Brush
208110306	OTC 60	0	WWTP	Brush
208110306	OTC 80	0	WWTP	Brush
208110306	CTC 20	0	WWTP	Brush
208110306	CTC 40	0	WWTP	Brush
208110306	CTC 60	0	WWTP	Brush
208110306	CTC 80	0	WWTP	Brush
209110306	VAN 1	2	WWTP	Brush
209110306	VAN 3	0	WWTP	Brush
209110306	VAN 5	0	WWTP	Brush
209110306	VAN 10	0	WWTP	Brush
209110306	ERY 1	0	WWTP	Brush
209110306	ERY 3	0	WWTP	Brush
209110306	ERY 5	0	WWTP	Brush
209110306	ERY 10	0	WWTP	Brush
209110306	STR 20	2	WWTP	Brush
209110306	STR 40	2	WWTP	Brush
209110306	STR 60	1	WWTP	Brush
209110306	STR 80	0	WWTP	Brush
209110306	OTC 20	0	WWTP	Brush
209110306	OTC 40	0	WWTP	Brush
209110306	OTC 60	0	WWTP	Brush
209110306	OTC 80	0	WWTP	Brush
209110306	CTC 20	0	WWTP	Brush
209110306	CTC 40	0	WWTP	Brush
209110306	CTC 60	0	WWTP	Brush
209110306	CTC 80	0	WWTP	Brush
210110306	VAN 1	0	WWTP	Brush
210110306	VAN 3	0	WWTP	Brush
210110306	VAN 5	0	WWTP	Brush
210110306	VAN 10	0	WWTP	Brush
210110306	ERY 1	2	WWTP	Brush
210110306	ERY 3	2	WWTP	Brush
210110306	ERY 5	2	WWTP	Brush
210110306	ERY 10	2	WWTP	Brush
210110306	STR 20	2	WWTP	Brush
210110306	STR 40	2	WWTP	Brush
210110306	STR 60	1	WWTP	Brush
210110306	STR 80	1	WWTP	Brush

Isolate	Antibiotic	Score	Source	Location
210110306	OTC 20	2	WWTP	Brush
210110306	OTC 40	2	WWTP	Brush
210110306	OTC 60	2	WWTP	Brush
210110306	OTC 80	1	WWTP	Brush
210110306	CTC 20	2	WWTP	Brush
210110306	CTC 40	2	WWTP	Brush
210110306	CTC 60	2	WWTP	Brush
210110306	CTC 80	2	WWTP	Brush
310110306	VAN 1	0	WWTP	Brush
310110306	VAN 3	0	WWTP	Brush
310110306	VAN 5	0	WWTP	Brush
310110306	VAN 10	0	WWTP	Brush
310110306	ERY 1	0	WWTP	Brush
310110306	ERY 3	0	WWTP	Brush
310110306	ERY 5	0	WWTP	Brush
310110306	ERY 10	0	WWTP	Brush
310110306	STR 20	2	WWTP	Brush
310110306	STR 40	2	WWTP	Brush
310110306	STR 60	1	WWTP	Brush
310110306	STR 80	0	WWTP	Brush
310110306	OTC 20	0	WWTP	Brush
310110306	OTC 40	0	WWTP	Brush
310110306	OTC 60	0	WWTP	Brush
310110306	OTC 80	0	WWTP	Brush
310110306	CTC 20	0	WWTP	Brush
310110306	CTC 40	0	WWTP	Brush
310110306	CTC 60	0	WWTP	Brush
310110306	CTC 80	0	WWTP	Brush
301110306	VAN 1	0	WWTP	Brush
301110306	VAN 3	0	WWTP	Brush
301110306	VAN 5	0	WWTP	Brush
301110306	VAN 10	0	WWTP	Brush
301110306	ERY 1	0	WWTP	Brush
301110306	ERY 3	0	WWTP	Brush
301110306	ERY 5	0	WWTP	Brush
301110306	ERY 10	0	WWTP	Brush
301110306	STR 20	1	WWTP	Brush
301110306	STR 40	1	WWTP	Brush
301110306	STR 60	0	WWTP	Brush
301110306	STR 80	0	WWTP	Brush
301110306	OTC 20	1	WWTP	Brush
301110306	OTC 40	0	WWTP	Brush
301110306	OTC 60	0	WWTP	Brush
301110306	OTC 80	0	WWTP	Brush

Isolate	Antibiotic	Score	Source	Location
301110306	CTC 20	1	WWTP	Brush
301110306	CTC 40	1	WWTP	Brush
301110306	CTC 60	0	WWTP	Brush
301110306	CTC 80	0	WWTP	Brush
302110306	VAN 1	2	WWTP	Brush
302110306	VAN 3	2	WWTP	Brush
302110306	VAN 5	1	WWTP	Brush
302110306	VAN 10	0	WWTP	Brush
302110306	ERY 1	0	WWTP	Brush
302110306	ERY 3	0	WWTP	Brush
302110306	ERY 5	0	WWTP	Brush
302110306	ERY 10	0	WWTP	Brush
302110306	STR 20	2	WWTP	Brush
302110306	STR 40	0	WWTP	Brush
302110306	STR 60	0	WWTP	Brush
302110306	STR 80	0	WWTP	Brush
302110306	OTC 20	0	WWTP	Brush
302110306	OTC 40	0	WWTP	Brush
302110306	OTC 60	0	WWTP	Brush
302110306	OTC 80	0	WWTP	Brush
302110306	CTC 20	0	WWTP	Brush
302110306	CTC 40	0	WWTP	Brush
302110306	CTC 60	0	WWTP	Brush
302110306	CTC 80	0	WWTP	Brush
303110306	VAN 1	2	WWTP	Brush
303110306	VAN 3	2	WWTP	Brush
303110306	VAN 5	2	WWTP	Brush
303110306	VAN 10	0	WWTP	Brush
303110306	ERY 1	0	WWTP	Brush
303110306	ERY 3	0	WWTP	Brush
303110306	ERY 5	0	WWTP	Brush
303110306	ERY 10	0	WWTP	Brush
303110306	STR 20	1	WWTP	Brush
303110306	STR 40	0	WWTP	Brush
303110306	STR 60	0	WWTP	Brush
303110306	STR 80	0	WWTP	Brush
303110306	OTC 20	0	WWTP	Brush
303110306	OTC 40	0	WWTP	Brush
303110306	OTC 60	0	WWTP	Brush
303110306	OTC 80	0	WWTP	Brush
303110306	CTC 20	0	WWTP	Brush
303110306	CTC 40	0	WWTP	Brush
303110306	CTC 60	0	WWTP	Brush
303110306	CTC 80	0	WWTP	Brush

Isolate	Antibiotic	Score	Source	Location
304110306	VAN 1	2	WWTP	Brush
304110306	VAN 3	2	WWTP	Brush
304110306	VAN 5	2	WWTP	Brush
304110306	VAN 10	0	WWTP	Brush
304110306	ERY 1	0	WWTP	Brush
304110306	ERY 3	0	WWTP	Brush
304110306	ERY 5	0	WWTP	Brush
304110306	ERY 10	0	WWTP	Brush
304110306	STR 20	1	WWTP	Brush
304110306	STR 40	0	WWTP	Brush
304110306	STR 60	0	WWTP	Brush
304110306	STR 80	0	WWTP	Brush
304110306	OTC 20	0	WWTP	Brush
304110306	OTC 40	0	WWTP	Brush
304110306	OTC 60	0	WWTP	Brush
304110306	OTC 80	0	WWTP	Brush
304110306	CTC 20	0	WWTP	Brush
304110306	CTC 40	0	WWTP	Brush
304110306	CTC 60	0	WWTP	Brush
304110306	CTC 80	0	WWTP	Brush
305110306	VAN 1	0	WWTP	Brush
305110306	VAN 3	0	WWTP	Brush
305110306	VAN 5	0	WWTP	Brush
305110306	VAN 10	0	WWTP	Brush
305110306	ERY 1	0	WWTP	Brush
305110306	ERY 3	0	WWTP	Brush
305110306	ERY 5	0	WWTP	Brush
305110306	ERY 10	0	WWTP	Brush
305110306	STR 20	2	WWTP	Brush
305110306	STR 40	2	WWTP	Brush
305110306	STR 60	0	WWTP	Brush
305110306	STR 80	0	WWTP	Brush
305110306	OTC 20	0	WWTP	Brush
305110306	OTC 40	0	WWTP	Brush
305110306	OTC 60	0	WWTP	Brush
305110306	OTC 80	0	WWTP	Brush
305110306	CTC 20	0	WWTP	Brush
305110306	CTC 40	0	WWTP	Brush
305110306	CTC 60	0	WWTP	Brush
305110306	CTC 80	0	WWTP	Brush
306110306	VAN 1	0	WWTP	Brush
306110306	VAN 3	0	WWTP	Brush
306110306	VAN 5	0	WWTP	Brush
306110306	VAN 10	0	WWTP	Brush

Isolate	Antibiotic	Score	Source	Location
306110306	ERY 1	0	WWTP	Brush
306110306	ERY 3	0	WWTP	Brush
306110306	ERY 5	0	WWTP	Brush
306110306	ERY 10	0	WWTP	Brush
306110306	STR 20	2	WWTP	Brush
306110306	STR 40	2	WWTP	Brush
306110306	STR 60	1	WWTP	Brush
306110306	STR 80	0	WWTP	Brush
306110306	OTC 20	0	WWTP	Brush
306110306	OTC 40	0	WWTP	Brush
306110306	OTC 60	0	WWTP	Brush
306110306	OTC 80	0	WWTP	Brush
306110306	CTC 20	0	WWTP	Brush
306110306	CTC 40	0	WWTP	Brush
306110306	CTC 60	0	WWTP	Brush
306110306	CTC 80	0	WWTP	Brush
307110306	VAN 1	0	WWTP	Brush
307110306	VAN 3	0	WWTP	Brush
307110306	VAN 5	0	WWTP	Brush
307110306	VAN 10	0	WWTP	Brush
307110306	ERY 1	0	WWTP	Brush
307110306	ERY 3	0	WWTP	Brush
307110306	ERY 5	0	WWTP	Brush
307110306	ERY 10	0	WWTP	Brush
307110306	STR 20	2	WWTP	Brush
307110306	STR 40	1	WWTP	Brush
307110306	STR 60	0	WWTP	Brush
307110306	STR 80	0	WWTP	Brush
307110306	OTC 20	2	WWTP	Brush
307110306	OTC 40	2	WWTP	Brush
307110306	OTC 60	2	WWTP	Brush
307110306	OTC 80	0	WWTP	Brush
307110306	CTC 20	2	WWTP	Brush
307110306	CTC 40	2	WWTP	Brush
307110306	CTC 60	2	WWTP	Brush
307110306	CTC 80	1	WWTP	Brush
308110306	VAN 1	2	WWTP	Brush
308110306	VAN 3	0	WWTP	Brush
308110306	VAN 5	0	WWTP	Brush
308110306	VAN 10	0	WWTP	Brush
308110306	ERY 1	0	WWTP	Brush
308110306	ERY 3	0	WWTP	Brush
308110306	ERY 5	0	WWTP	Brush
308110306	ERY 10	0	WWTP	Brush

Isolate	Antibiotic	Score	Source	Location
308110306	STR 20	2	WWTP	Brush
308110306	STR 40	2	WWTP	Brush
308110306	STR 60	1	WWTP	Brush
308110306	STR 80	0	WWTP	Brush
308110306	OTC 20	0	WWTP	Brush
308110306	OTC 40	0	WWTP	Brush
308110306	OTC 60	0	WWTP	Brush
308110306	OTC 80	0	WWTP	Brush
308110306	CTC 20	0	WWTP	Brush
308110306	CTC 40	0	WWTP	Brush
308110306	CTC 60	0	WWTP	Brush
308110306	CTC 80	0	WWTP	Brush
309110306	VAN 1	0	WWTP	Brush
309110306	VAN 3	0	WWTP	Brush
309110306	VAN 5	0	WWTP	Brush
309110306	VAN 10	0	WWTP	Brush
309110306	ERY 1	0	WWTP	Brush
309110306	ERY 3	0	WWTP	Brush
309110306	ERY 5	0	WWTP	Brush
309110306	ERY 10	0	WWTP	Brush
309110306	STR 20	2	WWTP	Brush
309110306	STR 40	1	WWTP	Brush
309110306	STR 60	1	WWTP	Brush
309110306	STR 80	0	WWTP	Brush
309110306	OTC 20	0	WWTP	Brush
309110306	OTC 40	0	WWTP	Brush
309110306	OTC 60	0	WWTP	Brush
309110306	OTC 80	0	WWTP	Brush
309110306	CTC 20	0	WWTP	Brush
309110306	CTC 40	0	WWTP	Brush
309110306	CTC 60	0	WWTP	Brush
309110306	CTC 80	0	WWTP	Brush
401110306	VAN 1	0	WWTP	Knob
401110306	VAN 3	0	WWTP	Knob
401110306	VAN 5	0	WWTP	Knob
401110306	VAN 10	0	WWTP	Knob
401110306	ERY 1	0	WWTP	Knob
401110306	ERY 3	0	WWTP	Knob
401110306	ERY 5	0	WWTP	Knob
401110306	ERY 10	0	WWTP	Knob
401110306	STR 20	1	WWTP	Knob
401110306	STR 40	1	WWTP	Knob
401110306	STR 60	0	WWTP	Knob
401110306	STR 80	0	WWTP	Knob

Isolate	Antibiotic	Score	Source	Location
401110306	OTC 20	2	WWTP	Knob
401110306	OTC 40	2	WWTP	Knob
401110306	OTC 60	2	WWTP	Knob
401110306	OTC 80	2	WWTP	Knob
401110306	CTC 20	2	WWTP	Knob
401110306	CTC 40	2	WWTP	Knob
401110306	CTC 60	2	WWTP	Knob
401110306	CTC 80	2	WWTP	Knob
402110306	VAN 1	0	WWTP	Knob
402110306	VAN 3	0	WWTP	Knob
402110306	VAN 5	0	WWTP	Knob
402110306	VAN 10	0	WWTP	Knob
402110306	ERY 1	0	WWTP	Knob
402110306	ERY 3	0	WWTP	Knob
402110306	ERY 5	0	WWTP	Knob
402110306	ERY 10	0	WWTP	Knob
402110306	STR 20	2	WWTP	Knob
402110306	STR 40	1	WWTP	Knob
402110306	STR 60	0	WWTP	Knob
402110306	STR 80	0	WWTP	Knob
402110306	OTC 20	1	WWTP	Knob
402110306	OTC 40	1	WWTP	Knob
402110306	OTC 60	0	WWTP	Knob
402110306	OTC 80	0	WWTP	Knob
402110306	CTC 20	1	WWTP	Knob
402110306	CTC 40	0	WWTP	Knob
402110306	CTC 60	0	WWTP	Knob
402110306	CTC 80	0	WWTP	Knob
403110306	VAN 1	0	WWTP	Knob
403110306	VAN 3	0	WWTP	Knob
403110306	VAN 5	0	WWTP	Knob
403110306	VAN 10	0	WWTP	Knob
403110306	ERY 1	0	WWTP	Knob
403110306	ERY 3	0	WWTP	Knob
403110306	ERY 5	0	WWTP	Knob
403110306	ERY 10	0	WWTP	Knob
403110306	STR 20	2	WWTP	Knob
403110306	STR 40	2	WWTP	Knob
403110306	STR 60	2	WWTP	Knob
403110306	STR 80	0	WWTP	Knob
403110306	OTC 20	2	WWTP	Knob
403110306	OTC 40	2	WWTP	Knob
403110306	OTC 60	0	WWTP	Knob
403110306	OTC 80	0	WWTP	Knob

Isolate	Antibiotic	Score	Source	Location
403110306	CTC 20	2	WWTP	Knob
403110306	CTC 40	2	WWTP	Knob
403110306	CTC 60	1	WWTP	Knob
403110306	CTC 80	0	WWTP	Knob
404110306	VAN 1	0	WWTP	Knob
404110306	VAN 3	0	WWTP	Knob
404110306	VAN 5	0	WWTP	Knob
404110306	VAN 10	0	WWTP	Knob
404110306	ERY 1	0	WWTP	Knob
404110306	ERY 3	0	WWTP	Knob
404110306	ERY 5	0	WWTP	Knob
404110306	ERY 10	0	WWTP	Knob
404110306	STR 20	2	WWTP	Knob
404110306	STR 40	0	WWTP	Knob
404110306	STR 60	0	WWTP	Knob
404110306	STR 80	0	WWTP	Knob
404110306	OTC 20	0	WWTP	Knob
404110306	OTC 40	0	WWTP	Knob
404110306	OTC 60	0	WWTP	Knob
404110306	OTC 80	0	WWTP	Knob
404110306	CTC 20	0	WWTP	Knob
404110306	CTC 40	0	WWTP	Knob
404110306	CTC 60	0	WWTP	Knob
404110306	CTC 80	0	WWTP	Knob
405110306	VAN 1	0	WWTP	Knob
405110306	VAN 3	0	WWTP	Knob
405110306	VAN 5	0	WWTP	Knob
405110306	VAN 10	0	WWTP	Knob
405110306	ERY 1	2	WWTP	Knob
405110306	ERY 3	2	WWTP	Knob
405110306	ERY 5	2	WWTP	Knob
405110306	ERY 10	1	WWTP	Knob
405110306	STR 20	2	WWTP	Knob
405110306	STR 40	2	WWTP	Knob
405110306	STR 60	2	WWTP	Knob
405110306	STR 80	2	WWTP	Knob
405110306	OTC 20	1	WWTP	Knob
405110306	OTC 40	1	WWTP	Knob
405110306	OTC 60	0	WWTP	Knob
405110306	OTC 80	0	WWTP	Knob
405110306	CTC 20	1	WWTP	Knob
405110306	CTC 40	1	WWTP	Knob
405110306	CTC 60	1	WWTP	Knob
405110306	CTC 80	0	WWTP	Knob

Isolate	Antibiotic	Score	Source	Location
407110306	VAN 1	0	WWTP	Knob
407110306	VAN 3	0	WWTP	Knob
407110306	VAN 5	0	WWTP	Knob
407110306	VAN 10	0	WWTP	Knob
407110306	ERY 1	2	WWTP	Knob
407110306	ERY 3	0	WWTP	Knob
407110306	ERY 5	0	WWTP	Knob
407110306	ERY 10	0	WWTP	Knob
407110306	STR 20	0	WWTP	Knob
407110306	STR 40	0	WWTP	Knob
407110306	STR 60	0	WWTP	Knob
407110306	STR 80	0	WWTP	Knob
407110306	OTC 20	0	WWTP	Knob
407110306	OTC 40	0	WWTP	Knob
407110306	OTC 60	0	WWTP	Knob
407110306	OTC 80	0	WWTP	Knob
407110306	CTC 20	0	WWTP	Knob
407110306	CTC 40	0	WWTP	Knob
407110306	CTC 60	0	WWTP	Knob
407110306	CTC 80	0	WWTP	Knob
408110306	VAN 1	0	WWTP	Knob
408110306	VAN 3	0	WWTP	Knob
408110306	VAN 5	0	WWTP	Knob
408110306	VAN 10	0	WWTP	Knob
408110306	ERY 1	2	WWTP	Knob
408110306	ERY 3	2	WWTP	Knob
408110306	ERY 5	2	WWTP	Knob
408110306	ERY 10	2	WWTP	Knob
408110306	STR 20	2	WWTP	Knob
408110306	STR 40	2	WWTP	Knob
408110306	STR 60	2	WWTP	Knob
408110306	STR 80	2	WWTP	Knob
408110306	OTC 20	2	WWTP	Knob
408110306	OTC 40	2	WWTP	Knob
408110306	OTC 60	2	WWTP	Knob
408110306	OTC 80	0	WWTP	Knob
408110306	CTC 20	2	WWTP	Knob
408110306	CTC 40	2	WWTP	Knob
408110306	CTC 60	2	WWTP	Knob
408110306	CTC 80	2	WWTP	Knob
409110306	VAN 1	0	WWTP	Knob
409110306	VAN 3	0	WWTP	Knob
409110306	VAN 5	0	WWTP	Knob
409110306	VAN 10	0	WWTP	Knob

Isolate	Antibiotic	Score	Source	Location
409110306	ERY 1	1	WWTP	Knob
409110306	ERY 3	1	WWTP	Knob
409110306	ERY 5	1	WWTP	Knob
409110306	ERY 10	1	WWTP	Knob
409110306	STR 20	1	WWTP	Knob
409110306	STR 40	1	WWTP	Knob
409110306	STR 60	1	WWTP	Knob
409110306	STR 80	1	WWTP	Knob
409110306	OTC 20	1	WWTP	Knob
409110306	OTC 40	1	WWTP	Knob
409110306	OTC 60	0	WWTP	Knob
409110306	OTC 80	0	WWTP	Knob
409110306	CTC 20	1	WWTP	Knob
409110306	CTC 40	1	WWTP	Knob
409110306	CTC 60	0	WWTP	Knob
409110306	CTC 80	0	WWTP	Knob
410110306	VAN 1	0	WWTP	Knob
410110306	VAN 3	0	WWTP	Knob
410110306	VAN 5	0	WWTP	Knob
410110306	VAN 10	0	WWTP	Knob
410110306	ERY 1	2	WWTP	Knob
410110306	ERY 3	2	WWTP	Knob
410110306	ERY 5	1	WWTP	Knob
410110306	ERY 10	1	WWTP	Knob
410110306	STR 20	2	WWTP	Knob
410110306	STR 40	2	WWTP	Knob
410110306	STR 60	2	WWTP	Knob
410110306	STR 80	2	WWTP	Knob
410110306	OTC 20	1	WWTP	Knob
410110306	OTC 40	1	WWTP	Knob
410110306	OTC 60	0	WWTP	Knob
410110306	OTC 80	0	WWTP	Knob
410110306	CTC 20	2	WWTP	Knob
410110306	CTC 40	1	WWTP	Knob
410110306	CTC 60	0	WWTP	Knob
410110306	CTC 80	0	WWTP	Knob
501110306	VAN 1	0	WWTP	Knob
501110306	VAN 3	0	WWTP	Knob
501110306	VAN 5	0	WWTP	Knob
501110306	VAN 10	0	WWTP	Knob
501110306	ERY 1	2	WWTP	Knob
501110306	ERY 3	2	WWTP	Knob
501110306	ERY 5	2	WWTP	Knob
501110306	ERY 10	2	WWTP	Knob

Isolate	Antibiotic	Score	Source	Location
501110306	STR 20	2	WWTP	Knob
501110306	STR 40	2	WWTP	Knob
501110306	STR 60	2	WWTP	Knob
501110306	STR 80	2	WWTP	Knob
501110306	OTC 20	2	WWTP	Knob
501110306	OTC 40	2	WWTP	Knob
501110306	OTC 60	2	WWTP	Knob
501110306	OTC 80	2	WWTP	Knob
501110306	CTC 20	2	WWTP	Knob
501110306	CTC 40	2	WWTP	Knob
501110306	CTC 60	2	WWTP	Knob
501110306	CTC 80	2	WWTP	Knob
502110306	VAN 1	1	WWTP	Knob
502110306	VAN 3	0	WWTP	Knob
502110306	VAN 5	0	WWTP	Knob
502110306	VAN 10	0	WWTP	Knob
502110306	ERY 1	1	WWTP	Knob
502110306	ERY 3	1	WWTP	Knob
502110306	ERY 5	1	WWTP	Knob
502110306	ERY 10	1	WWTP	Knob
502110306	STR 20	2	WWTP	Knob
502110306	STR 40	1	WWTP	Knob
502110306	STR 60	1	WWTP	Knob
502110306	STR 80	1	WWTP	Knob
502110306	OTC 20	2	WWTP	Knob
502110306	OTC 40	2	WWTP	Knob
502110306	OTC 60	2	WWTP	Knob
502110306	OTC 80	2	WWTP	Knob
502110306	CTC 20	2	WWTP	Knob
502110306	CTC 40	2	WWTP	Knob
502110306	CTC 60	2	WWTP	Knob
502110306	CTC 80	2	WWTP	Knob
503110306	VAN 1	0	WWTP	Knob
503110306	VAN 3	0	WWTP	Knob
503110306	VAN 5	0	WWTP	Knob
503110306	VAN 10	0	WWTP	Knob
503110306	ERY 1	2	WWTP	Knob
503110306	ERY 3	1	WWTP	Knob
503110306	ERY 5	1	WWTP	Knob
503110306	ERY 10	1	WWTP	Knob
503110306	STR 20	1	WWTP	Knob
503110306	STR 40	1	WWTP	Knob
503110306	STR 60	1	WWTP	Knob
503110306	STR 80	1	WWTP	Knob

Isolate	Antibiotic	Score	Source	Location
503110306	OTC 20	1	WWTP	Knob
503110306	OTC 40	1	WWTP	Knob
503110306	OTC 60	0	WWTP	Knob
503110306	OTC 80	0	WWTP	Knob
503110306	CTC 20	1	WWTP	Knob
503110306	CTC 40	1	WWTP	Knob
503110306	CTC 60	0	WWTP	Knob
503110306	CTC 80	0	WWTP	Knob
504110306	VAN 1	0	WWTP	Knob
504110306	VAN 3	0	WWTP	Knob
504110306	VAN 5	0	WWTP	Knob
504110306	VAN 10	0	WWTP	Knob
504110306	ERY 1	2	WWTP	Knob
504110306	ERY 3	2	WWTP	Knob
504110306	ERY 5	2	WWTP	Knob
504110306	ERY 10	2	WWTP	Knob
504110306	STR 20	2	WWTP	Knob
504110306	STR 40	2	WWTP	Knob
504110306	STR 60	1	WWTP	Knob
504110306	STR 80	0	WWTP	Knob
504110306	OTC 20	2	WWTP	Knob
504110306	OTC 40	2	WWTP	Knob
504110306	OTC 60	2	WWTP	Knob
504110306	OTC 80	2	WWTP	Knob
504110306	CTC 20	2	WWTP	Knob
504110306	CTC 40	2	WWTP	Knob
504110306	CTC 60	2	WWTP	Knob
504110306	CTC 80	2	WWTP	Knob
505110306	VAN 1	0	WWTP	Knob
505110306	VAN 3	0	WWTP	Knob
505110306	VAN 5	0	WWTP	Knob
505110306	VAN 10	0	WWTP	Knob
505110306	ERY 1	1	WWTP	Knob
505110306	ERY 3	1	WWTP	Knob
505110306	ERY 5	1	WWTP	Knob
505110306	ERY 10	1	WWTP	Knob
505110306	STR 20	2	WWTP	Knob
505110306	STR 40	1	WWTP	Knob
505110306	STR 60	1	WWTP	Knob
505110306	STR 80	0	WWTP	Knob
505110306	OTC 20	2	WWTP	Knob
505110306	OTC 40	1	WWTP	Knob
505110306	OTC 60	0	WWTP	Knob
505110306	OTC 80	0	WWTP	Knob

Isolate	Antibiotic	Score	Source	Location
505110306	CTC 20	2	WWTP	Knob
505110306	CTC 40	1	WWTP	Knob
505110306	CTC 60	1	WWTP	Knob
505110306	CTC 80	0	WWTP	Knob
506110306	VAN 1	0	WWTP	Knob
506110306	VAN 3	0	WWTP	Knob
506110306	VAN 5	0	WWTP	Knob
506110306	VAN 10	0	WWTP	Knob
506110306	ERY 1	2	WWTP	Knob
506110306	ERY 3	2	WWTP	Knob
506110306	ERY 5	2	WWTP	Knob
506110306	ERY 10	2	WWTP	Knob
506110306	STR 20	2	WWTP	Knob
506110306	STR 40	2	WWTP	Knob
506110306	STR 60	2	WWTP	Knob
506110306	STR 80	2	WWTP	Knob
506110306	OTC 20	2	WWTP	Knob
506110306	OTC 40	2	WWTP	Knob
506110306	OTC 60	2	WWTP	Knob
506110306	OTC 80	0	WWTP	Knob
506110306	CTC 20	2	WWTP	Knob
506110306	CTC 40	2	WWTP	Knob
506110306	CTC 60	2	WWTP	Knob
506110306	CTC 80	1	WWTP	Knob
507110306	VAN 1	0	WWTP	Knob
507110306	VAN 3	0	WWTP	Knob
507110306	VAN 5	0	WWTP	Knob
507110306	VAN 10	0	WWTP	Knob
507110306	ERY 1	0	WWTP	Knob
507110306	ERY 3	0	WWTP	Knob
507110306	ERY 5	0	WWTP	Knob
507110306	ERY 10	0	WWTP	Knob
507110306	STR 20	1	WWTP	Knob
507110306	STR 40	0	WWTP	Knob
507110306	STR 60	0	WWTP	Knob
507110306	STR 80	0	WWTP	Knob
507110306	OTC 20	2	WWTP	Knob
507110306	OTC 40	2	WWTP	Knob
507110306	OTC 60	1	WWTP	Knob
507110306	OTC 80	0	WWTP	Knob
507110306	CTC 20	2	WWTP	Knob
507110306	CTC 40	2	WWTP	Knob
507110306	CTC 60	2	WWTP	Knob
507110306	CTC 80	1	WWTP	Knob

Isolate	Antibiotic	Score	Source	Location
509110306	VAN 1	0	WWTP	Knob
509110306	VAN 3	0	WWTP	Knob
509110306	VAN 5	0	WWTP	Knob
509110306	VAN 10	0	WWTP	Knob
509110306	ERY 1	0	WWTP	Knob
509110306	ERY 3	0	WWTP	Knob
509110306	ERY 5	0	WWTP	Knob
509110306	ERY 10	0	WWTP	Knob
509110306	STR 20	2	WWTP	Knob
509110306	STR 40	0	WWTP	Knob
509110306	STR 60	0	WWTP	Knob
509110306	STR 80	0	WWTP	Knob
509110306	OTC 20	0	WWTP	Knob
509110306	OTC 40	0	WWTP	Knob
509110306	OTC 60	0	WWTP	Knob
509110306	OTC 80	0	WWTP	Knob
509110306	CTC 20	0	WWTP	Knob
509110306	CTC 40	0	WWTP	Knob
509110306	CTC 60	0	WWTP	Knob
509110306	CTC 80	0	WWTP	Knob
510110306	VAN 1	2	WWTP	Knob
510110306	VAN 3	0	WWTP	Knob
510110306	VAN 5	0	WWTP	Knob
510110306	VAN 10	0	WWTP	Knob
510110306	ERY 1	0	WWTP	Knob
510110306	ERY 3	0	WWTP	Knob
510110306	ERY 5	0	WWTP	Knob
510110306	ERY 10	0	WWTP	Knob
510110306	STR 20	2	WWTP	Knob
510110306	STR 40	2	WWTP	Knob
510110306	STR 60	2	WWTP	Knob
510110306	STR 80	1	WWTP	Knob
510110306	OTC 20	2	WWTP	Knob
510110306	OTC 40	2	WWTP	Knob
510110306	OTC 60	2	WWTP	Knob
510110306	OTC 80	2	WWTP	Knob
510110306	CTC 20	2	WWTP	Knob
510110306	CTC 40	2	WWTP	Knob
510110306	CTC 60	2	WWTP	Knob
510110306	CTC 80	2	WWTP	Knob
601110306	VAN 1	0	WWTP	Knob
601110306	VAN 3	0	WWTP	Knob
601110306	VAN 5	0	WWTP	Knob
601110306	VAN 10	0	WWTP	Knob

Isolate	Antibiotic	Score	Source	Location
601110306	ERY 1	2	WWTP	Knob
601110306	ERY 3	2	WWTP	Knob
601110306	ERY 5	2	WWTP	Knob
601110306	ERY 10	2	WWTP	Knob
601110306	STR 20	2	WWTP	Knob
601110306	STR 40	2	WWTP	Knob
601110306	STR 60	2	WWTP	Knob
601110306	STR 80	2	WWTP	Knob
601110306	OTC 20	2	WWTP	Knob
601110306	OTC 40	2	WWTP	Knob
601110306	OTC 60	2	WWTP	Knob
601110306	OTC 80	0	WWTP	Knob
601110306	CTC 20	2	WWTP	Knob
601110306	CTC 40	2	WWTP	Knob
601110306	CTC 60	2	WWTP	Knob
601110306	CTC 80	1	WWTP	Knob
602110306	VAN 1	0	WWTP	Knob
602110306	VAN 3	0	WWTP	Knob
602110306	VAN 5	0	WWTP	Knob
602110306	VAN 10	0	WWTP	Knob
602110306	ERY 1	1	WWTP	Knob
602110306	ERY 3	1	WWTP	Knob
602110306	ERY 5	1	WWTP	Knob
602110306	ERY 10	1	WWTP	Knob
602110306	STR 20	1	WWTP	Knob
602110306	STR 40	1	WWTP	Knob
602110306	STR 60	1	WWTP	Knob
602110306	STR 80	1	WWTP	Knob
602110306	OTC 20	1	WWTP	Knob
602110306	OTC 40	1	WWTP	Knob
602110306	OTC 60	1	WWTP	Knob
602110306	OTC 80	0	WWTP	Knob
602110306	CTC 20	1	WWTP	Knob
602110306	CTC 40	1	WWTP	Knob
602110306	CTC 60	1	WWTP	Knob
602110306	CTC 80	0	WWTP	Knob
603110306	VAN 1	0	WWTP	Knob
603110306	VAN 3	0	WWTP	Knob
603110306	VAN 5	0	WWTP	Knob
603110306	VAN 10	0	WWTP	Knob
603110306	ERY 1	2	WWTP	Knob
603110306	ERY 3	2	WWTP	Knob
603110306	ERY 5	2	WWTP	Knob
603110306	ERY 10	2	WWTP	Knob

Isolate	Antibiotic	Score	Source	Location
603110306	STR 20	2	WWTP	Knob
603110306	STR 40	2	WWTP	Knob
603110306	STR 60	2	WWTP	Knob
603110306	STR 80	2	WWTP	Knob
603110306	OTC 20	2	WWTP	Knob
603110306	OTC 40	2	WWTP	Knob
603110306	OTC 60	1	WWTP	Knob
603110306	OTC 80	0	WWTP	Knob
603110306	CTC 20	2	WWTP	Knob
603110306	CTC 40	2	WWTP	Knob
603110306	CTC 60	2	WWTP	Knob
603110306	CTC 80	1	WWTP	Knob
604110306	VAN 1	0	WWTP	Knob
604110306	VAN 3	0	WWTP	Knob
604110306	VAN 5	0	WWTP	Knob
604110306	VAN 10	0	WWTP	Knob
604110306	ERY 1	2	WWTP	Knob
604110306	ERY 3	2	WWTP	Knob
604110306	ERY 5	2	WWTP	Knob
604110306	ERY 10	2	WWTP	Knob
604110306	STR 20	2	WWTP	Knob
604110306	STR 40	2	WWTP	Knob
604110306	STR 60	2	WWTP	Knob
604110306	STR 80	2	WWTP	Knob
604110306	OTC 20	2	WWTP	Knob
604110306	OTC 40	2	WWTP	Knob
604110306	OTC 60	1	WWTP	Knob
604110306	OTC 80	0	WWTP	Knob
604110306	CTC 20	2	WWTP	Knob
604110306	CTC 40	2	WWTP	Knob
604110306	CTC 60	1	WWTP	Knob
604110306	CTC 80	1	WWTP	Knob
605110306	VAN 1	0	WWTP	Knob
605110306	VAN 3	0	WWTP	Knob
605110306	VAN 5	0	WWTP	Knob
605110306	VAN 10	0	WWTP	Knob
605110306	ERY 1	2	WWTP	Knob
605110306	ERY 3	2	WWTP	Knob
605110306	ERY 5	2	WWTP	Knob
605110306	ERY 10	2	WWTP	Knob
605110306	STR 20	2	WWTP	Knob
605110306	STR 40	2	WWTP	Knob
605110306	STR 60	2	WWTP	Knob
605110306	STR 80	2	WWTP	Knob

Isolate	Antibiotic	Score	Source	Location
605110306	OTC 20	1	WWTP	Knob
605110306	OTC 40	1	WWTP	Knob
605110306	OTC 60	1	WWTP	Knob
605110306	OTC 80	1	WWTP	Knob
605110306	CTC 20	1	WWTP	Knob
605110306	CTC 40	1	WWTP	Knob
605110306	CTC 60	1	WWTP	Knob
605110306	CTC 80	1	WWTP	Knob
606110306	VAN 1	0	WWTP	Knob
606110306	VAN 3	0	WWTP	Knob
606110306	VAN 5	0	WWTP	Knob
606110306	VAN 10	0	WWTP	Knob
606110306	ERY 1	1	WWTP	Knob
606110306	ERY 3	1	WWTP	Knob
606110306	ERY 5	1	WWTP	Knob
606110306	ERY 10	1	WWTP	Knob
606110306	STR 20	2	WWTP	Knob
606110306	STR 40	1	WWTP	Knob
606110306	STR 60	1	WWTP	Knob
606110306	STR 80	1	WWTP	Knob
606110306	OTC 20	2	WWTP	Knob
606110306	OTC 40	2	WWTP	Knob
606110306	OTC 60	2	WWTP	Knob
606110306	OTC 80	2	WWTP	Knob
606110306	CTC 20	2	WWTP	Knob
606110306	CTC 40	2	WWTP	Knob
606110306	CTC 60	2	WWTP	Knob
606110306	CTC 80	2	WWTP	Knob
607110306	VAN 1	0	WWTP	Knob
607110306	VAN 3	0	WWTP	Knob
607110306	VAN 5	0	WWTP	Knob
607110306	VAN 10	0	WWTP	Knob
607110306	ERY 1	1	WWTP	Knob
607110306	ERY 3	1	WWTP	Knob
607110306	ERY 5	1	WWTP	Knob
607110306	ERY 10	1	WWTP	Knob
607110306	STR 20	2	WWTP	Knob
607110306	STR 40	2	WWTP	Knob
607110306	STR 60	2	WWTP	Knob
607110306	STR 80	2	WWTP	Knob
607110306	OTC 20	2	WWTP	Knob
607110306	OTC 40	2	WWTP	Knob
607110306	OTC 60	2	WWTP	Knob
607110306	OTC 80	2	WWTP	Knob

Isolate	Antibiotic	Score	Source	Location
607110306	CTC 20	2	WWTP	Knob
607110306	CTC 40	2	WWTP	Knob
607110306	CTC 60	2	WWTP	Knob
607110306	CTC 80	2	WWTP	Knob
608110306	VAN 1	0	WWTP	Knob
608110306	VAN 3	0	WWTP	Knob
608110306	VAN 5	0	WWTP	Knob
608110306	VAN 10	0	WWTP	Knob
608110306	ERY 1	2	WWTP	Knob
608110306	ERY 3	1	WWTP	Knob
608110306	ERY 5	1	WWTP	Knob
608110306	ERY 10	1	WWTP	Knob
608110306	STR 20	1	WWTP	Knob
608110306	STR 40	1	WWTP	Knob
608110306	STR 60	1	WWTP	Knob
608110306	STR 80	0	WWTP	Knob
608110306	OTC 20	1	WWTP	Knob
608110306	OTC 40	1	WWTP	Knob
608110306	OTC 60	0	WWTP	Knob
608110306	OTC 80	0	WWTP	Knob
608110306	CTC 20	1	WWTP	Knob
608110306	CTC 40	1	WWTP	Knob
608110306	CTC 60	0	WWTP	Knob
608110306	CTC 80	0	WWTP	Knob
609110306	VAN 1	0	WWTP	Knob
609110306	VAN 3	0	WWTP	Knob
609110306	VAN 5	0	WWTP	Knob
609110306	VAN 10	0	WWTP	Knob
609110306	ERY 1	1	WWTP	Knob
609110306	ERY 3	1	WWTP	Knob
609110306	ERY 5	1	WWTP	Knob
609110306	ERY 10	1	WWTP	Knob
609110306	STR 20	1	WWTP	Knob
609110306	STR 40	1	WWTP	Knob
609110306	STR 60	1	WWTP	Knob
609110306	STR 80	0	WWTP	Knob
609110306	OTC 20	1	WWTP	Knob
609110306	OTC 40	1	WWTP	Knob
609110306	OTC 60	0	WWTP	Knob
609110306	OTC 80	0	WWTP	Knob
609110306	CTC 20	1	WWTP	Knob
609110306	CTC 40	0	WWTP	Knob
609110306	CTC 60	0	WWTP	Knob
609110306	CTC 80	0	WWTP	Knob

Isolate	Antibiotic	Score	Source	Location
610110306	VAN 1	0	WWTP	Knob
610110306	VAN 3	0	WWTP	Knob
610110306	VAN 5	0	WWTP	Knob
610110306	VAN 10	0	WWTP	Knob
610110306	ERY 1	2	WWTP	Knob
610110306	ERY 3	2	WWTP	Knob
610110306	ERY 5	2	WWTP	Knob
610110306	ERY 10	2	WWTP	Knob
610110306	STR 20	2	WWTP	Knob
610110306	STR 40	2	WWTP	Knob
610110306	STR 60	2	WWTP	Knob
610110306	STR 80	2	WWTP	Knob
610110306	OTC 20	2	WWTP	Knob
610110306	OTC 40	2	WWTP	Knob
610110306	OTC 60	1	WWTP	Knob
610110306	OTC 80	0	WWTP	Knob
610110306	CTC 20	2	WWTP	Knob
610110306	CTC 40	2	WWTP	Knob
610110306	CTC 60	2	WWTP	Knob
610110306	CTC 80	1	WWTP	Knob
103121205	VAN 1	2	creek	S.C.
103121205	VAN 3	2	creek	S.C.
103121205	VAN 5	0	creek	S.C.
103121205	VAN 10	0	creek	S.C.
103121205	ERY 1	1	creek	S.C.
103121205	ERY 3	0	creek	S.C.
103121205	ERY 5	0	creek	S.C.
103121205	ERY 10	0	creek	S.C.
103121205	STR 20	1	creek	S.C.
103121205	STR 40	0	creek	S.C.
103121205	STR 60	0	creek	S.C.
103121205	STR 80	0	creek	S.C.
103121205	OTC 20	0	creek	S.C.
103121205	OTC 40	0	creek	S.C.
103121205	OTC 60	0	creek	S.C.
103121205	OTC 80	0	creek	S.C.
103121205	CTC 20	0	creek	S.C.
103121205	CTC 40	0	creek	S.C.
103121205	CTC 60	0	creek	S.C.
103121205	CTC 80	0	creek	S.C.
104121205	VAN 1	2	creek	S.C.
104121205	VAN 3	2	creek	S.C.
104121205	VAN 5	0	creek	S.C.
104121205	VAN 10	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
104121205	ERY 1	1	creek	S.C.
104121205	ERY 3	0	creek	S.C.
104121205	ERY 5	0	creek	S.C.
104121205	ERY 10	0	creek	S.C.
104121205	STR 20	0	creek	S.C.
104121205	STR 40	0	creek	S.C.
104121205	STR 60	0	creek	S.C.
104121205	STR 80	0	creek	S.C.
104121205	OTC 20	0	creek	S.C.
104121205	OTC 40	0	creek	S.C.
104121205	OTC 60	0	creek	S.C.
104121205	OTC 80	0	creek	S.C.
104121205	CTC 20	1	creek	S.C.
104121205	CTC 40	0	creek	S.C.
104121205	CTC 60	0	creek	S.C.
104121205	CTC 80	0	creek	S.C.
105121205	VAN 1	2	creek	S.C.
105121205	VAN 3	2	creek	S.C.
105121205	VAN 5	0	creek	S.C.
105121205	VAN 10	0	creek	S.C.
105121205	ERY 1	1	creek	S.C.
105121205	ERY 3	1	creek	S.C.
105121205	ERY 5	1	creek	S.C.
105121205	ERY 10	1	creek	S.C.
105121205	STR 20	1	creek	S.C.
105121205	STR 40	1	creek	S.C.
105121205	STR 60	1	creek	S.C.
105121205	STR 80	0	creek	S.C.
105121205	OTC 20	1	creek	S.C.
105121205	OTC 40	1	creek	S.C.
105121205	OTC 60	0	creek	S.C.
105121205	OTC 80	0	creek	S.C.
105121205	CTC 20	1	creek	S.C.
105121205	CTC 40	1	creek	S.C.
105121205	CTC 60	0	creek	S.C.
105121205	CTC 80	0	creek	S.C.
201121205	VAN 1	2	creek	S.C.
201121205	VAN 3	2	creek	S.C.
201121205	VAN 5	0	creek	S.C.
201121205	VAN 10	0	creek	S.C.
201121205	ERY 1	1	creek	S.C.
201121205	ERY 3	1	creek	S.C.
201121205	ERY 5	1	creek	S.C.
201121205	ERY 10	1	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
201121205	STR 20	1	creek	S.C.
201121205	STR 40	1	creek	S.C.
201121205	STR 60	1	creek	S.C.
201121205	STR 80	1	creek	S.C.
201121205	OTC 20	2	creek	S.C.
201121205	OTC 40	2	creek	S.C.
201121205	OTC 60	1	creek	S.C.
201121205	OTC 80	0	creek	S.C.
201121205	CTC 20	2	creek	S.C.
201121205	CTC 40	2	creek	S.C.
201121205	CTC 60	2	creek	S.C.
201121205	CTC 80	0	creek	S.C.
202121205	VAN 1	2	creek	S.C.
202121205	VAN 3	1	creek	S.C.
202121205	VAN 5	0	creek	S.C.
202121205	VAN 10	0	creek	S.C.
202121205	ERY 1	1	creek	S.C.
202121205	ERY 3	1	creek	S.C.
202121205	ERY 5	1	creek	S.C.
202121205	ERY 10	1	creek	S.C.
202121205	STR 20	1	creek	S.C.
202121205	STR 40	1	creek	S.C.
202121205	STR 60	1	creek	S.C.
202121205	STR 80	1	creek	S.C.
202121205	OTC 20	1	creek	S.C.
202121205	OTC 40	1	creek	S.C.
202121205	OTC 60	0	creek	S.C.
202121205	OTC 80	0	creek	S.C.
202121205	CTC 20	1	creek	S.C.
202121205	CTC 40	1	creek	S.C.
202121205	CTC 60	0	creek	S.C.
202121205	CTC 80	0	creek	S.C.
203121205	VAN 1	1	creek	S.C.
203121205	VAN 3	0	creek	S.C.
203121205	VAN 5	0	creek	S.C.
203121205	VAN 10	0	creek	S.C.
203121205	ERY 1	1	creek	S.C.
203121205	ERY 3	1	creek	S.C.
203121205	ERY 5	1	creek	S.C.
203121205	ERY 10	1	creek	S.C.
203121205	STR 20	2	creek	S.C.
203121205	STR 40	1	creek	S.C.
203121205	STR 60	1	creek	S.C.
203121205	STR 80	1	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
203121205	OTC 20	1	creek	S.C.
203121205	OTC 40	1	creek	S.C.
203121205	OTC 60	0	creek	S.C.
203121205	OTC 80	0	creek	S.C.
203121205	CTC 20	1	creek	S.C.
203121205	CTC 40	0	creek	S.C.
203121205	CTC 60	0	creek	S.C.
203121205	CTC 80	0	creek	S.C.
204121205	VAN 1	0	creek	S.C.
204121205	VAN 3	0	creek	S.C.
204121205	VAN 5	0	creek	S.C.
204121205	VAN 10	0	creek	S.C.
204121205	ERY 1	1	creek	S.C.
204121205	ERY 3	1	creek	S.C.
204121205	ERY 5	1	creek	S.C.
204121205	ERY 10	1	creek	S.C.
204121205	STR 20	2	creek	S.C.
204121205	STR 40	1	creek	S.C.
204121205	STR 60	1	creek	S.C.
204121205	STR 80	1	creek	S.C.
204121205	OTC 20	1	creek	S.C.
204121205	OTC 40	1	creek	S.C.
204121205	OTC 60	1	creek	S.C.
204121205	OTC 80	0	creek	S.C.
204121205	CTC 20	1	creek	S.C.
204121205	CTC 40	1	creek	S.C.
204121205	CTC 60	1	creek	S.C.
204121205	CTC 80	1	creek	S.C.
205121205	VAN 1	0	creek	S.C.
205121205	VAN 3	0	creek	S.C.
205121205	VAN 5	0	creek	S.C.
205121205	VAN 10	0	creek	S.C.
205121205	ERY 1	1	creek	S.C.
205121205	ERY 3	1	creek	S.C.
205121205	ERY 5	1	creek	S.C.
205121205	ERY 10	1	creek	S.C.
205121205	STR 20	1	creek	S.C.
205121205	STR 40	1	creek	S.C.
205121205	STR 60	1	creek	S.C.
205121205	STR 80	1	creek	S.C.
205121205	OTC 20	2	creek	S.C.
205121205	OTC 40	2	creek	S.C.
205121205	OTC 60	1	creek	S.C.
205121205	OTC 80	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
205121205	CTC 20	2	creek	S.C.
205121205	CTC 40	2	creek	S.C.
205121205	CTC 60	2	creek	S.C.
205121205	CTC 80	1	creek	S.C.
302121205	VAN 1	0	creek	S.C.
302121205	VAN 3	0	creek	S.C.
302121205	VAN 5	0	creek	S.C.
302121205	VAN 10	0	creek	S.C.
302121205	ERY 1	0	creek	S.C.
302121205	ERY 3	0	creek	S.C.
302121205	ERY 5	0	creek	S.C.
302121205	ERY 10	0	creek	S.C.
302121205	STR 20	2	creek	S.C.
302121205	STR 40	1	creek	S.C.
302121205	STR 60	1	creek	S.C.
302121205	STR 80	0	creek	S.C.
302121205	OTC 20	2	creek	S.C.
302121205	OTC 40	2	creek	S.C.
302121205	OTC 60	0	creek	S.C.
302121205	OTC 80	0	creek	S.C.
302121205	CTC 20	2	creek	S.C.
302121205	CTC 40	2	creek	S.C.
302121205	CTC 60	2	creek	S.C.
302121205	CTC 80	0	creek	S.C.
303121205	VAN 1	2	creek	S.C.
303121205	VAN 3	2	creek	S.C.
303121205	VAN 5	0	creek	S.C.
303121205	VAN 10	0	creek	S.C.
303121205	ERY 1	1	creek	S.C.
303121205	ERY 3	1	creek	S.C.
303121205	ERY 5	0	creek	S.C.
303121205	ERY 10	0	creek	S.C.
303121205	STR 20	1	creek	S.C.
303121205	STR 40	1	creek	S.C.
303121205	STR 60	1	creek	S.C.
303121205	STR 80	1	creek	S.C.
303121205	OTC 20	2	creek	S.C.
303121205	OTC 40	2	creek	S.C.
303121205	OTC 60	2	creek	S.C.
303121205	OTC 80	1	creek	S.C.
303121205	CTC 20	2	creek	S.C.
303121205	CTC 40	2	creek	S.C.
303121205	CTC 60	2	creek	S.C.
303121205	CTC 80	1	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
304121205	VAN 1	0	creek	S.C.
304121205	VAN 3	0	creek	S.C.
304121205	VAN 5	0	creek	S.C.
304121205	VAN 10	0	creek	S.C.
304121205	ERY 1	0	creek	S.C.
304121205	ERY 3	0	creek	S.C.
304121205	ERY 5	0	creek	S.C.
304121205	ERY 10	0	creek	S.C.
304121205	STR 20	2	creek	S.C.
304121205	STR 40	2	creek	S.C.
304121205	STR 60	2	creek	S.C.
304121205	STR 80	1	creek	S.C.
304121205	OTC 20	0	creek	S.C.
304121205	OTC 40	0	creek	S.C.
304121205	OTC 60	0	creek	S.C.
304121205	OTC 80	0	creek	S.C.
304121205	CTC 20	0	creek	S.C.
304121205	CTC 40	0	creek	S.C.
304121205	CTC 60	0	creek	S.C.
304121205	CTC 80	0	creek	S.C.
305121205	VAN 1	0	creek	S.C.
305121205	VAN 3	0	creek	S.C.
305121205	VAN 5	0	creek	S.C.
305121205	VAN 10	0	creek	S.C.
305121205	ERY 1	1	creek	S.C.
305121205	ERY 3	1	creek	S.C.
305121205	ERY 5	0	creek	S.C.
305121205	ERY 10	0	creek	S.C.
305121205	STR 20	0	creek	S.C.
305121205	STR 40	0	creek	S.C.
305121205	STR 60	0	creek	S.C.
305121205	STR 80	0	creek	S.C.
305121205	OTC 20	2	creek	S.C.
305121205	OTC 40	2	creek	S.C.
305121205	OTC 60	0	creek	S.C.
305121205	OTC 80	0	creek	S.C.
305121205	CTC 20	2	creek	S.C.
305121205	CTC 40	2	creek	S.C.
305121205	CTC 60	2	creek	S.C.
305121205	CTC 80	0	creek	S.C.
401121205	VAN 1	0	creek	S.C.
401121205	VAN 3	0	creek	S.C.
401121205	VAN 5	0	creek	S.C.
401121205	VAN 10	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
401121205	ERY 1	1	creek	S.C.
401121205	ERY 3	0	creek	S.C.
401121205	ERY 5	0	creek	S.C.
401121205	ERY 10	0	creek	S.C.
401121205	STR 20	0	creek	S.C.
401121205	STR 40	0	creek	S.C.
401121205	STR 60	0	creek	S.C.
401121205	STR 80	0	creek	S.C.
401121205	OTC 20	2	creek	S.C.
401121205	OTC 40	2	creek	S.C.
401121205	OTC 60	0	creek	S.C.
401121205	OTC 80	0	creek	S.C.
401121205	CTC 20	2	creek	S.C.
401121205	CTC 40	2	creek	S.C.
401121205	CTC 60	1	creek	S.C.
401121205	CTC 80	0	creek	S.C.
402121205	VAN 1	0	creek	S.C.
402121205	VAN 3	0	creek	S.C.
402121205	VAN 5	0	creek	S.C.
402121205	VAN 10	0	creek	S.C.
402121205	ERY 1	2	creek	S.C.
402121205	ERY 3	1	creek	S.C.
402121205	ERY 5	0	creek	S.C.
402121205	ERY 10	0	creek	S.C.
402121205	STR 20	0	creek	S.C.
402121205	STR 40	0	creek	S.C.
402121205	STR 60	0	creek	S.C.
402121205	STR 80	0	creek	S.C.
402121205	OTC 20	2	creek	S.C.
402121205	OTC 40	2	creek	S.C.
402121205	OTC 60	1	creek	S.C.
402121205	OTC 80	0	creek	S.C.
402121205	CTC 20	2	creek	S.C.
402121205	CTC 40	2	creek	S.C.
402121205	CTC 60	2	creek	S.C.
402121205	CTC 80	0	creek	S.C.
403121205	VAN 1	2	creek	S.C.
403121205	VAN 3	0	creek	S.C.
403121205	VAN 5	0	creek	S.C.
403121205	VAN 10	0	creek	S.C.
403121205	ERY 1	0	creek	S.C.
403121205	ERY 3	0	creek	S.C.
403121205	ERY 5	0	creek	S.C.
403121205	ERY 10	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
403121205	STR 20	2	creek	S.C.
403121205	STR 40	1	creek	S.C.
403121205	STR 60	0	creek	S.C.
403121205	STR 80	0	creek	S.C.
403121205	OTC 20	0	creek	S.C.
403121205	OTC 40	0	creek	S.C.
403121205	OTC 60	0	creek	S.C.
403121205	OTC 80	0	creek	S.C.
403121205	CTC 20	0	creek	S.C.
403121205	CTC 40	0	creek	S.C.
403121205	CTC 60	0	creek	S.C.
403121205	CTC 80	0	creek	S.C.
404121205	VAN 1	2	creek	S.C.
404121205	VAN 3	2	creek	S.C.
404121205	VAN 5	0	creek	S.C.
404121205	VAN 10	0	creek	S.C.
404121205	ERY 1	1	creek	S.C.
404121205	ERY 3	0	creek	S.C.
404121205	ERY 5	0	creek	S.C.
404121205	ERY 10	0	creek	S.C.
404121205	STR 20	0	creek	S.C.
404121205	STR 40	0	creek	S.C.
404121205	STR 60	0	creek	S.C.
404121205	STR 80	0	creek	S.C.
404121205	OTC 20	0	creek	S.C.
404121205	OTC 40	0	creek	S.C.
404121205	OTC 60	0	creek	S.C.
404121205	OTC 80	0	creek	S.C.
404121205	CTC 20	0	creek	S.C.
404121205	CTC 40	0	creek	S.C.
404121205	CTC 60	0	creek	S.C.
404121205	CTC 80	0	creek	S.C.
405121205	VAN 1	2	creek	S.C.
405121205	VAN 3	2	creek	S.C.
405121205	VAN 5	0	creek	S.C.
405121205	VAN 10	0	creek	S.C.
405121205	ERY 1	1	creek	S.C.
405121205	ERY 3	0	creek	S.C.
405121205	ERY 5	0	creek	S.C.
405121205	ERY 10	0	creek	S.C.
405121205	STR 20	1	creek	S.C.
405121205	STR 40	0	creek	S.C.
405121205	STR 60	0	creek	S.C.
405121205	STR 80	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
405121205	OTC 20	0	creek	S.C.
405121205	OTC 40	0	creek	S.C.
405121205	OTC 60	0	creek	S.C.
405121205	OTC 80	0	creek	S.C.
405121205	CTC 20	0	creek	S.C.
405121205	CTC 40	0	creek	S.C.
405121205	CTC 60	0	creek	S.C.
405121205	CTC 80	0	creek	S.C.
501121205	VAN 1	2	creek	S.C.
501121205	VAN 3	2	creek	S.C.
501121205	VAN 5	0	creek	S.C.
501121205	VAN 10	0	creek	S.C.
501121205	ERY 1	0	creek	S.C.
501121205	ERY 3	0	creek	S.C.
501121205	ERY 5	0	creek	S.C.
501121205	ERY 10	0	creek	S.C.
501121205	STR 20	1	creek	S.C.
501121205	STR 40	0	creek	S.C.
501121205	STR 60	0	creek	S.C.
501121205	STR 80	0	creek	S.C.
501121205	OTC 20	0	creek	S.C.
501121205	OTC 40	0	creek	S.C.
501121205	OTC 60	0	creek	S.C.
501121205	OTC 80	0	creek	S.C.
501121205	CTC 20	0	creek	S.C.
501121205	CTC 40	0	creek	S.C.
501121205	CTC 60	0	creek	S.C.
501121205	CTC 80	0	creek	S.C.
502121205	VAN 1	2	creek	S.C.
502121205	VAN 3	2	creek	S.C.
502121205	VAN 5	0	creek	S.C.
502121205	VAN 10	0	creek	S.C.
502121205	ERY 1	1	creek	S.C.
502121205	ERY 3	0	creek	S.C.
502121205	ERY 5	0	creek	S.C.
502121205	ERY 10	0	creek	S.C.
502121205	STR 20	1	creek	S.C.
502121205	STR 40	0	creek	S.C.
502121205	STR 60	0	creek	S.C.
502121205	STR 80	0	creek	S.C.
502121205	OTC 20	0	creek	S.C.
502121205	OTC 40	0	creek	S.C.
502121205	OTC 60	0	creek	S.C.
502121205	OTC 80	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
502121205	CTC 20	0	creek	S.C.
502121205	CTC 40	0	creek	S.C.
502121205	CTC 60	0	creek	S.C.
502121205	CTC 80	0	creek	S.C.
503121205	VAN 1	2	creek	S.C.
503121205	VAN 3	2	creek	S.C.
503121205	VAN 5	0	creek	S.C.
503121205	VAN 10	0	creek	S.C.
503121205	ERY 1	2	creek	S.C.
503121205	ERY 3	1	creek	S.C.
503121205	ERY 5	0	creek	S.C.
503121205	ERY 10	0	creek	S.C.
503121205	STR 20	1	creek	S.C.
503121205	STR 40	1	creek	S.C.
503121205	STR 60	1	creek	S.C.
503121205	STR 80	1	creek	S.C.
503121205	OTC 20	0	creek	S.C.
503121205	OTC 40	0	creek	S.C.
503121205	OTC 60	0	creek	S.C.
503121205	OTC 80	0	creek	S.C.
503121205	CTC 20	0	creek	S.C.
503121205	CTC 40	0	creek	S.C.
503121205	CTC 60	0	creek	S.C.
503121205	CTC 80	0	creek	S.C.
601121205	VAN 1	1	creek	S.C.
601121205	VAN 3	1	creek	S.C.
601121205	VAN 5	0	creek	S.C.
601121205	VAN 10	0	creek	S.C.
601121205	ERY 1	0	creek	S.C.
601121205	ERY 3	0	creek	S.C.
601121205	ERY 5	0	creek	S.C.
601121205	ERY 10	0	creek	S.C.
601121205	STR 20	2	creek	S.C.
601121205	STR 40	2	creek	S.C.
601121205	STR 60	2	creek	S.C.
601121205	STR 80	1	creek	S.C.
601121205	OTC 20	1	creek	S.C.
601121205	OTC 40	0	creek	S.C.
601121205	OTC 60	0	creek	S.C.
601121205	OTC 80	0	creek	S.C.
601121205	CTC 20	1	creek	S.C.
601121205	CTC 40	1	creek	S.C.
601121205	CTC 60	0	creek	S.C.
601121205	CTC 80	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
602121205	VAN 1	0	creek	S.C.
602121205	VAN 3	0	creek	S.C.
602121205	VAN 5	0	creek	S.C.
602121205	VAN 10	0	creek	S.C.
602121205	ERY 1	0	creek	S.C.
602121205	ERY 3	0	creek	S.C.
602121205	ERY 5	0	creek	S.C.
602121205	ERY 10	0	creek	S.C.
602121205	STR 20	2	creek	S.C.
602121205	STR 40	1	creek	S.C.
602121205	STR 60	1	creek	S.C.
602121205	STR 80	1	creek	S.C.
602121205	OTC 20	2	creek	S.C.
602121205	OTC 40	2	creek	S.C.
602121205	OTC 60	2	creek	S.C.
602121205	OTC 80	1	creek	S.C.
602121205	CTC 20	2	creek	S.C.
602121205	CTC 40	2	creek	S.C.
602121205	CTC 60	2	creek	S.C.
602121205	CTC 80	1	creek	S.C.
603121205	VAN 1	0	creek	S.C.
603121205	VAN 3	0	creek	S.C.
603121205	VAN 5	0	creek	S.C.
603121205	VAN 10	0	creek	S.C.
603121205	ERY 1	0	creek	S.C.
603121205	ERY 3	0	creek	S.C.
603121205	ERY 5	0	creek	S.C.
603121205	ERY 10	0	creek	S.C.
603121205	STR 20	2	creek	S.C.
603121205	STR 40	2	creek	S.C.
603121205	STR 60	1	creek	S.C.
603121205	STR 80	0	creek	S.C.
603121205	OTC 20	1	creek	S.C.
603121205	OTC 40	1	creek	S.C.
603121205	OTC 60	1	creek	S.C.
603121205	OTC 80	0	creek	S.C.
603121205	CTC 20	1	creek	S.C.
603121205	CTC 40	1	creek	S.C.
603121205	CTC 60	1	creek	S.C.
603121205	CTC 80	1	creek	S.C.
701121205	VAN 1	0	creek	S.C.
701121205	VAN 3	0	creek	S.C.
701121205	VAN 5	0	creek	S.C.
701121205	VAN 10	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
701121205	ERY 1	1	creek	S.C.
701121205	ERY 3	0	creek	S.C.
701121205	ERY 5	0	creek	S.C.
701121205	ERY 10	0	creek	S.C.
701121205	STR 20	0	creek	S.C.
701121205	STR 40	0	creek	S.C.
701121205	STR 60	0	creek	S.C.
701121205	STR 80	0	creek	S.C.
701121205	OTC 20	2	creek	S.C.
701121205	OTC 40	2	creek	S.C.
701121205	OTC 60	2	creek	S.C.
701121205	OTC 80	1	creek	S.C.
701121205	CTC 20	2	creek	S.C.
701121205	CTC 40	2	creek	S.C.
701121205	CTC 60	2	creek	S.C.
701121205	CTC 80	2	creek	S.C.
801121205	VAN 1	2	creek	S.C.
801121205	VAN 3	2	creek	S.C.
801121205	VAN 5	0	creek	S.C.
801121205	VAN 10	0	creek	S.C.
801121205	ERY 1	1	creek	S.C.
801121205	ERY 3	0	creek	S.C.
801121205	ERY 5	0	creek	S.C.
801121205	ERY 10	0	creek	S.C.
801121205	STR 20	0	creek	S.C.
801121205	STR 40	0	creek	S.C.
801121205	STR 60	0	creek	S.C.
801121205	STR 80	0	creek	S.C.
801121205	OTC 20	0	creek	S.C.
801121205	OTC 40	0	creek	S.C.
801121205	OTC 60	0	creek	S.C.
801121205	OTC 80	0	creek	S.C.
801121205	CTC 20	0	creek	S.C.
801121205	CTC 40	0	creek	S.C.
801121205	CTC 60	0	creek	S.C.
801121205	CTC 80	0	creek	S.C.
802121205	VAN 1	0	creek	S.C.
802121205	VAN 3	0	creek	S.C.
802121205	VAN 5	0	creek	S.C.
802121205	VAN 10	0	creek	S.C.
802121205	ERY 1	0	creek	S.C.
802121205	ERY 3	0	creek	S.C.
802121205	ERY 5	0	creek	S.C.
802121205	ERY 10	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
802121205	STR 20	2	creek	S.C.
802121205	STR 40	2	creek	S.C.
802121205	STR 60	2	creek	S.C.
802121205	STR 80	2	creek	S.C.
802121205	OTC 20	2	creek	S.C.
802121205	OTC 40	2	creek	S.C.
802121205	OTC 60	0	creek	S.C.
802121205	OTC 80	0	creek	S.C.
802121205	CTC 20	2	creek	S.C.
802121205	CTC 40	2	creek	S.C.
802121205	CTC 60	2	creek	S.C.
802121205	CTC 80	0	creek	S.C.
803121205	VAN 1	2	creek	S.C.
803121205	VAN 3	2	creek	S.C.
803121205	VAN 5	0	creek	S.C.
803121205	VAN 10	0	creek	S.C.
803121205	ERY 1	0	creek	S.C.
803121205	ERY 3	0	creek	S.C.
803121205	ERY 5	0	creek	S.C.
803121205	ERY 10	0	creek	S.C.
803121205	STR 20	2	creek	S.C.
803121205	STR 40	0	creek	S.C.
803121205	STR 60	0	creek	S.C.
803121205	STR 80	0	creek	S.C.
803121205	OTC 20	0	creek	S.C.
803121205	OTC 40	0	creek	S.C.
803121205	OTC 60	0	creek	S.C.
803121205	OTC 80	0	creek	S.C.
803121205	CTC 20	0	creek	S.C.
803121205	CTC 40	0	creek	S.C.
803121205	CTC 60	0	creek	S.C.
803121205	CTC 80	0	creek	S.C.
904121205	VAN 1	2	creek	S.C.
904121205	VAN 3	2	creek	S.C.
904121205	VAN 5	0	creek	S.C.
904121205	VAN 10	0	creek	S.C.
904121205	ERY 1	0	creek	S.C.
904121205	ERY 3	0	creek	S.C.
904121205	ERY 5	0	creek	S.C.
904121205	ERY 10	0	creek	S.C.
904121205	STR 20	0	creek	S.C.
904121205	STR 40	0	creek	S.C.
904121205	STR 60	0	creek	S.C.
904121205	STR 80	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
904121205	OTC 20	0	creek	S.C.
904121205	OTC 40	0	creek	S.C.
904121205	OTC 60	0	creek	S.C.
904121205	OTC 80	0	creek	S.C.
904121205	CTC 20	0	creek	S.C.
904121205	CTC 40	0	creek	S.C.
904121205	CTC 60	0	creek	S.C.
904121205	CTC 80	0	creek	S.C.
905121205	VAN 1	2	creek	S.C.
905121205	VAN 3	2	creek	S.C.
905121205	VAN 5	0	creek	S.C.
905121205	VAN 10	0	creek	S.C.
905121205	ERY 1	1	creek	S.C.
905121205	ERY 3	0	creek	S.C.
905121205	ERY 5	0	creek	S.C.
905121205	ERY 10	0	creek	S.C.
905121205	STR 20	1	creek	S.C.
905121205	STR 40	0	creek	S.C.
905121205	STR 60	0	creek	S.C.
905121205	STR 80	0	creek	S.C.
905121205	OTC 20	0	creek	S.C.
905121205	OTC 40	0	creek	S.C.
905121205	OTC 60	0	creek	S.C.
905121205	OTC 80	0	creek	S.C.
905121205	CTC 20	0	creek	S.C.
905121205	CTC 40	0	creek	S.C.
905121205	CTC 60	0	creek	S.C.
905121205	CTC 80	0	creek	S.C.
1001121205	VAN 1	1	creek	S.C.
1001121205	VAN 3	0	creek	S.C.
1001121205	VAN 5	0	creek	S.C.
1001121205	VAN 10	0	creek	S.C.
1001121205	ERY 1	0	creek	S.C.
1001121205	ERY 3	0	creek	S.C.
1001121205	ERY 5	0	creek	S.C.
1001121205	ERY 10	0	creek	S.C.
1001121205	STR 20	2	creek	S.C.
1001121205	STR 40	2	creek	S.C.
1001121205	STR 60	2	creek	S.C.
1001121205	STR 80	1	creek	S.C.
1001121205	OTC 20	0	creek	S.C.
1001121205	OTC 40	0	creek	S.C.
1001121205	OTC 60	0	creek	S.C.
1001121205	OTC 80	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1001121205	CTC 20	0	creek	S.C.
1001121205	CTC 40	0	creek	S.C.
1001121205	CTC 60	0	creek	S.C.
1001121205	CTC 80	0	creek	S.C.
1002121205	VAN 1	1	creek	S.C.
1002121205	VAN 3	0	creek	S.C.
1002121205	VAN 5	0	creek	S.C.
1002121205	VAN 10	0	creek	S.C.
1002121205	ERY 1	0	creek	S.C.
1002121205	ERY 3	0	creek	S.C.
1002121205	ERY 5	0	creek	S.C.
1002121205	ERY 10	0	creek	S.C.
1002121205	STR 20	2	creek	S.C.
1002121205	STR 40	2	creek	S.C.
1002121205	STR 60	2	creek	S.C.
1002121205	STR 80	1	creek	S.C.
1002121205	OTC 20	0	creek	S.C.
1002121205	OTC 40	0	creek	S.C.
1002121205	OTC 60	0	creek	S.C.
1002121205	OTC 80	0	creek	S.C.
1002121205	CTC 20	0	creek	S.C.
1002121205	CTC 40	0	creek	S.C.
1002121205	CTC 60	0	creek	S.C.
1002121205	CTC 80	0	creek	S.C.
1003121205	VAN 1	1	creek	S.C.
1003121205	VAN 3	0	creek	S.C.
1003121205	VAN 5	0	creek	S.C.
1003121205	VAN 10	0	creek	S.C.
1003121205	ERY 1	0	creek	S.C.
1003121205	ERY 3	0	creek	S.C.
1003121205	ERY 5	0	creek	S.C.
1003121205	ERY 10	0	creek	S.C.
1003121205	STR 20	2	creek	S.C.
1003121205	STR 40	2	creek	S.C.
1003121205	STR 60	2	creek	S.C.
1003121205	STR 80	2	creek	S.C.
1003121205	OTC 20	0	creek	S.C.
1003121205	OTC 40	0	creek	S.C.
1003121205	OTC 60	0	creek	S.C.
1003121205	OTC 80	0	creek	S.C.
1003121205	CTC 20	0	creek	S.C.
1003121205	CTC 40	0	creek	S.C.
1003121205	CTC 60	0	creek	S.C.
1003121205	CTC 80	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1004121205	VAN 1	0	creek	S.C.
1004121205	VAN 3	0	creek	S.C.
1004121205	VAN 5	0	creek	S.C.
1004121205	VAN 10	0	creek	S.C.
1004121205	ERY 1	0	creek	S.C.
1004121205	ERY 3	0	creek	S.C.
1004121205	ERY 5	0	creek	S.C.
1004121205	ERY 10	0	creek	S.C.
1004121205	STR 20	2	creek	S.C.
1004121205	STR 40	2	creek	S.C.
1004121205	STR 60	1	creek	S.C.
1004121205	STR 80	1	creek	S.C.
1004121205	OTC 20	0	creek	S.C.
1004121205	OTC 40	0	creek	S.C.
1004121205	OTC 60	0	creek	S.C.
1004121205	OTC 80	0	creek	S.C.
1004121205	CTC 20	0	creek	S.C.
1004121205	CTC 40	0	creek	S.C.
1004121205	CTC 60	0	creek	S.C.
1004121205	CTC 80	0	creek	S.C.
1005121205	VAN 1	1	creek	S.C.
1005121205	VAN 3	0	creek	S.C.
1005121205	VAN 5	0	creek	S.C.
1005121205	VAN 10	0	creek	S.C.
1005121205	ERY 1	1	creek	S.C.
1005121205	ERY 3	0	creek	S.C.
1005121205	ERY 5	0	creek	S.C.
1005121205	ERY 10	0	creek	S.C.
1005121205	STR 20	2	creek	S.C.
1005121205	STR 40	1	creek	S.C.
1005121205	STR 60	1	creek	S.C.
1005121205	STR 80	0	creek	S.C.
1005121205	OTC 20	0	creek	S.C.
1005121205	OTC 40	0	creek	S.C.
1005121205	OTC 60	0	creek	S.C.
1005121205	OTC 80	0	creek	S.C.
1005121205	CTC 20	0	creek	S.C.
1005121205	CTC 40	0	creek	S.C.
1005121205	CTC 60	0	creek	S.C.
1005121205	CTC 80	0	creek	S.C.
1202121205	VAN 1	2	creek	S.C.
1202121205	VAN 3	2	creek	S.C.
1202121205	VAN 5	0	creek	S.C.
1202121205	VAN 10	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1202121205	ERY 1	0	creek	S.C.
1202121205	ERY 3	0	creek	S.C.
1202121205	ERY 5	0	creek	S.C.
1202121205	ERY 10	0	creek	S.C.
1202121205	STR 20	0	creek	S.C.
1202121205	STR 40	0	creek	S.C.
1202121205	STR 60	0	creek	S.C.
1202121205	STR 80	0	creek	S.C.
1202121205	OTC 20	0	creek	S.C.
1202121205	OTC 40	0	creek	S.C.
1202121205	OTC 60	0	creek	S.C.
1202121205	OTC 80	0	creek	S.C.
1202121205	CTC 20	0	creek	S.C.
1202121205	CTC 40	0	creek	S.C.
1202121205	CTC 60	0	creek	S.C.
1202121205	CTC 80	0	creek	S.C.
1203121205	VAN 1	0	creek	S.C.
1203121205	VAN 3	0	creek	S.C.
1203121205	VAN 5	0	creek	S.C.
1203121205	VAN 10	0	creek	S.C.
1203121205	ERY 1	0	creek	S.C.
1203121205	ERY 3	0	creek	S.C.
1203121205	ERY 5	0	creek	S.C.
1203121205	ERY 10	0	creek	S.C.
1203121205	STR 20	2	creek	S.C.
1203121205	STR 40	2	creek	S.C.
1203121205	STR 60	1	creek	S.C.
1203121205	STR 80	0	creek	S.C.
1203121205	OTC 20	2	creek	S.C.
1203121205	OTC 40	2	creek	S.C.
1203121205	OTC 60	2	creek	S.C.
1203121205	OTC 80	2	creek	S.C.
1203121205	CTC 20	2	creek	S.C.
1203121205	CTC 40	2	creek	S.C.
1203121205	CTC 60	2	creek	S.C.
1203121205	CTC 80	2	creek	S.C.
1204121205	VAN 1	0	creek	S.C.
1204121205	VAN 3	0	creek	S.C.
1204121205	VAN 5	0	creek	S.C.
1204121205	VAN 10	0	creek	S.C.
1204121205	ERY 1	0	creek	S.C.
1204121205	ERY 3	0	creek	S.C.
1204121205	ERY 5	0	creek	S.C.
1204121205	ERY 10	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1204121205	STR 20	2	creek	S.C.
1204121205	STR 40	1	creek	S.C.
1204121205	STR 60	1	creek	S.C.
1204121205	STR 80	0	creek	S.C.
1204121205	OTC 20	2	creek	S.C.
1204121205	OTC 40	2	creek	S.C.
1204121205	OTC 60	2	creek	S.C.
1204121205	OTC 80	2	creek	S.C.
1204121205	CTC 20	2	creek	S.C.
1204121205	CTC 40	2	creek	S.C.
1204121205	CTC 60	2	creek	S.C.
1204121205	CTC 80	2	creek	S.C.
1205121205	VAN 1	0	creek	S.C.
1205121205	VAN 3	0	creek	S.C.
1205121205	VAN 5	0	creek	S.C.
1205121205	VAN 10	0	creek	S.C.
1205121205	ERY 1	0	creek	S.C.
1205121205	ERY 3	0	creek	S.C.
1205121205	ERY 5	0	creek	S.C.
1205121205	ERY 10	0	creek	S.C.
1205121205	STR 20	2	creek	S.C.
1205121205	STR 40	1	creek	S.C.
1205121205	STR 60	0	creek	S.C.
1205121205	STR 80	0	creek	S.C.
1205121205	OTC 20	2	creek	S.C.
1205121205	OTC 40	2	creek	S.C.
1205121205	OTC 60	2	creek	S.C.
1205121205	OTC 80	2	creek	S.C.
1205121205	CTC 20	2	creek	S.C.
1205121205	CTC 40	2	creek	S.C.
1205121205	CTC 60	2	creek	S.C.
1205121205	CTC 80	2	creek	S.C.
1205121205	VAN 1	0	creek	S.C.
1205121205	VAN 3	0	creek	S.C.
1205121205	VAN 5	0	creek	S.C.
1205121205	VAN 10	0	creek	S.C.
1205121205	ERY 1	0	creek	S.C.
1205121205	ERY 3	0	creek	S.C.
1205121205	ERY 5	0	creek	S.C.
1205121205	ERY 10	0	creek	S.C.
1205121205	STR 20	2	creek	S.C.
1205121205	STR 40	1	creek	S.C.
1205121205	STR 60	0	creek	S.C.
1205121205	STR 80	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1205121205	OTC 20	2	creek	S.C.
1205121205	OTC 40	2	creek	S.C.
1205121205	OTC 60	2	creek	S.C.
1205121205	OTC 80	2	creek	S.C.
1205121205	CTC 20	2	creek	S.C.
1205121205	CTC 40	2	creek	S.C.
1205121205	CTC 60	2	creek	S.C.
1205121205	CTC 80	2	creek	S.C.
1301121205	VAN 1	2	creek	S.C.
1301121205	VAN 3	2	creek	S.C.
1301121205	VAN 5	0	creek	S.C.
1301121205	VAN 10	0	creek	S.C.
1301121205	ERY 1	1	creek	S.C.
1301121205	ERY 3	0	creek	S.C.
1301121205	ERY 5	0	creek	S.C.
1301121205	ERY 10	0	creek	S.C.
1301121205	STR 20	0	creek	S.C.
1301121205	STR 40	0	creek	S.C.
1301121205	STR 60	0	creek	S.C.
1301121205	STR 80	0	creek	S.C.
1301121205	OTC 20	0	creek	S.C.
1301121205	OTC 40	0	creek	S.C.
1301121205	OTC 60	0	creek	S.C.
1301121205	OTC 80	0	creek	S.C.
1301121205	CTC 20	0	creek	S.C.
1301121205	CTC 40	0	creek	S.C.
1301121205	CTC 60	0	creek	S.C.
1301121205	CTC 80	0	creek	S.C.
1301121205	VAN 1	2	creek	S.C.
1301121205	VAN 3	2	creek	S.C.
1301121205	VAN 5	0	creek	S.C.
1301121205	VAN 10	0	creek	S.C.
1301121205	ERY 1	1	creek	S.C.
1301121205	ERY 3	0	creek	S.C.
1301121205	ERY 5	0	creek	S.C.
1301121205	ERY 10	0	creek	S.C.
1301121205	STR 20	0	creek	S.C.
1301121205	STR 40	0	creek	S.C.
1301121205	STR 60	0	creek	S.C.
1301121205	STR 80	0	creek	S.C.
1301121205	OTC 20	0	creek	S.C.
1301121205	OTC 40	0	creek	S.C.
1301121205	OTC 60	0	creek	S.C.
1301121205	OTC 80	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1301121205	CTC 20	0	creek	S.C.
1301121205	CTC 40	0	creek	S.C.
1301121205	CTC 60	0	creek	S.C.
1301121205	CTC 80	0	creek	S.C.

Table 16 Data from ARA Plate Number 4. The isolate column contains the identification number for each isolate processed. 101032706 means that isolate came from sample 1 and was the first isolate. The final 6 numbers are the date that sample was collected (i.e., March 27, 2006 = 032706). The antibiotic column contains the antibiotic and concentration used, in μg/ml. Vancomycin was represented by VAN, erythromycin was ERY, streptomycin was STR, oxytetracycline hydrochloride was OTC, and chlortetracycline hydrochloride was CTC. The growth of each isolate was scored as a 0, 1, or 2 in the score column. This was later converted to binary code, using only 0 or 1 (scores of 2 would become 1). The source column displays the origin of the samples. The location column indicated where the samples were from. Horse and cow samples were from S.C. (Sinking Creek). Cat and dog samples were collected from other laboratory personnel with pets. WWTP sample locations were recorded based on what treatment plant they came from.

Isolate	Antibiotic	Score	Source	Location
1303121205	VAN 1	2	creek	S.C.
1303121205	VAN 3	2	creek	S.C.
1303121205	VAN 5	0	creek	S.C.
1303121205	VAN 10	0	creek	S.C.
1303121205	ERY 1	0	creek	S.C.
1303121205	ERY 3	0	creek	S.C.
1303121205	ERY 5	0	creek	S.C.
1303121205	ERY 10	0	creek	S.C.
1303121205	STR 20	2	creek	S.C.
1303121205	STR 40	0	creek	S.C.
1303121205	STR 60	0	creek	S.C.
1303121205	STR 80	0	creek	S.C.
1303121205	OTC 20	0	creek	S.C.
1303121205	OTC 40	0	creek	S.C.
1303121205	OTC 60	0	creek	S.C.
1303121205	OTC 80	0	creek	S.C.
1303121205	CTC 20	0	creek	S.C.
1303121205	CTC 40	0	creek	S.C.
1303121205	CTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1303121205	CTC 80	0	creek	S.C.
1401121205	VAN 1	2	creek	S.C.
1401121205	VAN 3	2	creek	S.C.
1401121205	VAN 5	0	creek	S.C.
1401121205	VAN 10	0	creek	S.C.
1401121205	ERY 1	2	creek	S.C.
1401121205	ERY 3	0	creek	S.C.
1401121205	ERY 5	0	creek	S.C.
1401121205	ERY 10	0	creek	S.C.
1401121205	STR 20	2	creek	S.C.
1401121205	STR 40	1	creek	S.C.
1401121205	STR 60	0	creek	S.C.
1401121205	STR 80	0	creek	S.C.
1401121205	OTC 20	0	creek	S.C.
1401121205	OTC 40	0	creek	S.C.
1401121205	OTC 60	0	creek	S.C.
1401121205	OTC 80	0	creek	S.C.
1401121205	CTC 20	0	creek	S.C.
1401121205	CTC 40	0	creek	S.C.
1401121205	CTC 60	0	creek	S.C.
1401121205	CTC 80	0	creek	S.C.
1402121205	VAN 1	none	creek	S.C.
1402121205	VAN 3	none	creek	S.C.
1402121205	VAN 5	none	creek	S.C.
1402121205	VAN 10	none	creek	S.C.
1402121205	ERY 1	none	creek	S.C.
1402121205	ERY 3	none	creek	S.C.
1402121205	ERY 5	none	creek	S.C.
1402121205	ERY 10	none	creek	S.C.
1402121205	STR 20	none	creek	S.C.
1402121205	STR 40	none	creek	S.C.
1402121205	STR 60	none	creek	S.C.
1402121205	STR 80	none	creek	S.C.
1402121205	OTC 20	none	creek	S.C.
1402121205	OTC 40	none	creek	S.C.
1402121205	OTC 60	none	creek	S.C.
1402121205	OTC 80	none	creek	S.C.
1402121205	CTC 20	none	creek	S.C.
1402121205	CTC 40	none	creek	S.C.
1402121205	CTC 60	none	creek	S.C.
1402121205	CTC 80	none	creek	S.C.
101021406	VAN 1	2	creek	S.C.
101021406	VAN 3	0	creek	S.C.
101021406	VAN 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
101021406	VAN 10	0	creek	S.C.
101021406	ERY 1	0	creek	S.C.
101021406	ERY 3	0	creek	S.C.
101021406	ERY 5	0	creek	S.C.
101021406	ERY 10	0	creek	S.C.
101021406	STR 20	2	creek	S.C.
101021406	STR 40	2	creek	S.C.
101021406	STR 60	2	creek	S.C.
101021406	STR 80	1	creek	S.C.
101021406	OTC 20	2	creek	S.C.
101021406	OTC 40	2	creek	S.C.
101021406	OTC 60	2	creek	S.C.
101021406	OTC 80	1	creek	S.C.
101021406	CTC 20	2	creek	S.C.
101021406	CTC 40	1	creek	S.C.
101021406	CTC 60	1	creek	S.C.
101021406	CTC 80	0	creek	S.C.
102021406	VAN 1	0	creek	S.C.
102021406	VAN 3	0	creek	S.C.
102021406	VAN 5	0	creek	S.C.
102021406	VAN 10	0	creek	S.C.
102021406	ERY 1	2	creek	S.C.
102021406	ERY 3	1	creek	S.C.
102021406	ERY 5	0	creek	S.C.
102021406	ERY 10	0	creek	S.C.
102021406	STR 20	1	creek	S.C.
102021406	STR 40	0	creek	S.C.
102021406	STR 60	0	creek	S.C.
102021406	STR 80	0	creek	S.C.
102021406	OTC 20	2	creek	S.C.
102021406	OTC 40	1	creek	S.C.
102021406	OTC 60	0	creek	S.C.
102021406	OTC 80	0	creek	S.C.
102021406	CTC 20	2	creek	S.C.
102021406	CTC 40	1	creek	S.C.
102021406	CTC 60	0	creek	S.C.
102021406	CTC 80	0	creek	S.C.
103021406	VAN 1	0	creek	S.C.
103021406	VAN 3	0	creek	S.C.
103021406	VAN 5	0	creek	S.C.
103021406	VAN 10	0	creek	S.C.
103021406	ERY 1	0	creek	S.C.
103021406	ERY 3	0	creek	S.C.
103021406	ERY 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
103021406	ERY 10	0	creek	S.C.
103021406	STR 20	2	creek	S.C.
103021406	STR 40	2	creek	S.C.
103021406	STR 60	1	creek	S.C.
103021406	STR 80	0	creek	S.C.
103021406	OTC 20	0	creek	S.C.
103021406	OTC 40	0	creek	S.C.
103021406	OTC 60	0	creek	S.C.
103021406	OTC 80	0	creek	S.C.
103021406	CTC 20	0	creek	S.C.
103021406	CTC 40	0	creek	S.C.
103021406	CTC 60	0	creek	S.C.
103021406	CTC 80	0	creek	S.C.
105021406	VAN 1	0	creek	S.C.
105021406	VAN 3	0	creek	S.C.
105021406	VAN 5	0	creek	S.C.
105021406	VAN 10	0	creek	S.C.
105021406	ERY 1	0	creek	S.C.
105021406	ERY 3	0	creek	S.C.
105021406	ERY 5	0	creek	S.C.
105021406	ERY 10	0	creek	S.C.
105021406	STR 20	2	creek	S.C.
105021406	STR 40	1	creek	S.C.
105021406	STR 60	0	creek	S.C.
105021406	STR 80	0	creek	S.C.
105021406	OTC 20	2	creek	S.C.
105021406	OTC 40	2	creek	S.C.
105021406	OTC 60	1	creek	S.C.
105021406	OTC 80	0	creek	S.C.
105021406	CTC 20	1	creek	S.C.
105021406	CTC 40	0	creek	S.C.
105021406	CTC 60	0	creek	S.C.
105021406	CTC 80	0	creek	S.C.
201021406	VAN 1	none	creek	S.C.
201021406	VAN 3	none	creek	S.C.
201021406	VAN 5	none	creek	S.C.
201021406	VAN 10	none	creek	S.C.
201021406	ERY 1	none	creek	S.C.
201021406	ERY 3	none	creek	S.C.
201021406	ERY 5	none	creek	S.C.
201021406	ERY 10	none	creek	S.C.
201021406	STR 20	none	creek	S.C.
201021406	STR 40	none	creek	S.C.
201021406	STR 60	none	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
201021406	STR 80	none	creek	S.C.
201021406	OTC 20	none	creek	S.C.
201021406	OTC 40	none	creek	S.C.
201021406	OTC 60	none	creek	S.C.
201021406	OTC 80	none	creek	S.C.
201021406	CTC 20	none	creek	S.C.
201021406	CTC 40	none	creek	S.C.
201021406	CTC 60	none	creek	S.C.
201021406	CTC 80	none	creek	S.C.
202021406	VAN 1	0	creek	S.C.
202021406	VAN 3	0	creek	S.C.
202021406	VAN 5	0	creek	S.C.
202021406	VAN 10	0	creek	S.C.
202021406	ERY 1	0	creek	S.C.
202021406	ERY 3	0	creek	S.C.
202021406	ERY 5	0	creek	S.C.
202021406	ERY 10	0	creek	S.C.
202021406	STR 20	2	creek	S.C.
202021406	STR 40	0	creek	S.C.
202021406	STR 60	0	creek	S.C.
202021406	STR 80	0	creek	S.C.
202021406	OTC 20	2	creek	S.C.
202021406	OTC 40	2	creek	S.C.
202021406	OTC 60	1	creek	S.C.
202021406	OTC 80	1	creek	S.C.
202021406	CTC 20	1	creek	S.C.
202021406	CTC 40	1	creek	S.C.
202021406	CTC 60	1	creek	S.C.
202021406	CTC 80	0	creek	S.C.
203021406	VAN 1	2	creek	S.C.
203021406	VAN 3	2	creek	S.C.
203021406	VAN 5	0	creek	S.C.
203021406	VAN 10	0	creek	S.C.
203021406	ERY 1	1	creek	S.C.
203021406	ERY 3	0	creek	S.C.
203021406	ERY 5	0	creek	S.C.
203021406	ERY 10	0	creek	S.C.
203021406	STR 20	2	creek	S.C.
203021406	STR 40	0	creek	S.C.
203021406	STR 60	0	creek	S.C.
203021406	STR 80	0	creek	S.C.
203021406	OTC 20	0	creek	S.C.
203021406	OTC 40	0	creek	S.C.
203021406	OTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
203021406	OTC 80	0	creek	S.C.
203021406	CTC 20	0	creek	S.C.
203021406	CTC 40	0	creek	S.C.
203021406	CTC 60	0	creek	S.C.
203021406	CTC 80	0	creek	S.C.
204021406	VAN 1	0	creek	S.C.
204021406	VAN 3	0	creek	S.C.
204021406	VAN 5	0	creek	S.C.
204021406	VAN 10	0	creek	S.C.
204021406	ERY 1	0	creek	S.C.
204021406	ERY 3	0	creek	S.C.
204021406	ERY 5	0	creek	S.C.
204021406	ERY 10	0	creek	S.C.
204021406	STR 20	2	creek	S.C.
204021406	STR 40	2	creek	S.C.
204021406	STR 60	0	creek	S.C.
204021406	STR 80	0	creek	S.C.
204021406	OTC 20	2	creek	S.C.
204021406	OTC 40	2	creek	S.C.
204021406	OTC 60	1	creek	S.C.
204021406	OTC 80	0	creek	S.C.
204021406	CTC 20	1	creek	S.C.
204021406	CTC 40	0	creek	S.C.
204021406	CTC 60	0	creek	S.C.
204021406	CTC 80	0	creek	S.C.
205021406	VAN 1	none	creek	S.C.
205021406	VAN 3	none	creek	S.C.
205021406	VAN 5	none	creek	S.C.
205021406	VAN 10	none	creek	S.C.
205021406	ERY 1	none	creek	S.C.
205021406	ERY 3	none	creek	S.C.
205021406	ERY 5	none	creek	S.C.
205021406	ERY 10	none	creek	S.C.
205021406	STR 20	none	creek	S.C.
205021406	STR 40	none	creek	S.C.
205021406	STR 60	none	creek	S.C.
205021406	STR 80	none	creek	S.C.
205021406	OTC 20	none	creek	S.C.
205021406	OTC 40	none	creek	S.C.
205021406	OTC 60	none	creek	S.C.
205021406	OTC 80	none	creek	S.C.
205021406	CTC 20	none	creek	S.C.
205021406	CTC 40	none	creek	S.C.
205021406	CTC 60	none	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
205021406	CTC 80	none	creek	S.C.
301021406	VAN 1	0	creek	S.C.
301021406	VAN 3	0	creek	S.C.
301021406	VAN 5	0	creek	S.C.
301021406	VAN 10	0	creek	S.C.
301021406	ERY 1	0	creek	S.C.
301021406	ERY 3	0	creek	S.C.
301021406	ERY 5	0	creek	S.C.
301021406	ERY 10	0	creek	S.C.
301021406	STR 20	2	creek	S.C.
301021406	STR 40	1	creek	S.C.
301021406	STR 60	0	creek	S.C.
301021406	STR 80	0	creek	S.C.
301021406	OTC 20	2	creek	S.C.
301021406	OTC 40	2	creek	S.C.
301021406	OTC 60	2	creek	S.C.
301021406	OTC 80	1	creek	S.C.
301021406	CTC 20	2	creek	S.C.
301021406	CTC 40	1	creek	S.C.
301021406	CTC 60	1	creek	S.C.
301021406	CTC 80	0	creek	S.C.
302021406	VAN 1	0	creek	S.C.
302021406	VAN 3	0	creek	S.C.
302021406	VAN 5	0	creek	S.C.
302021406	VAN 10	0	creek	S.C.
302021406	ERY 1	0	creek	S.C.
302021406	ERY 3	0	creek	S.C.
302021406	ERY 5	0	creek	S.C.
302021406	ERY 10	0	creek	S.C.
302021406	STR 20	2	creek	S.C.
302021406	STR 40	1	creek	S.C.
302021406	STR 60	0	creek	S.C.
302021406	STR 80	0	creek	S.C.
302021406	OTC 20	2	creek	S.C.
302021406	OTC 40	2	creek	S.C.
302021406	OTC 60	1	creek	S.C.
302021406	OTC 80	1	creek	S.C.
302021406	CTC 20	1	creek	S.C.
302021406	CTC 40	1	creek	S.C.
302021406	CTC 60	1	creek	S.C.
302021406	CTC 80	0	creek	S.C.
303021406	VAN 1	0	creek	S.C.
303021406	VAN 3	0	creek	S.C.
303021406	VAN 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
303021406	VAN 10	0	creek	S.C.
303021406	ERY 1	0	creek	S.C.
303021406	ERY 3	0	creek	S.C.
303021406	ERY 5	0	creek	S.C.
303021406	ERY 10	0	creek	S.C.
303021406	STR 20	2	creek	S.C.
303021406	STR 40	0	creek	S.C.
303021406	STR 60	0	creek	S.C.
303021406	STR 80	0	creek	S.C.
303021406	OTC 20	2	creek	S.C.
303021406	OTC 40	2	creek	S.C.
303021406	OTC 60	1	creek	S.C.
303021406	OTC 80	0	creek	S.C.
303021406	CTC 20	1	creek	S.C.
303021406	CTC 40	0	creek	S.C.
303021406	CTC 60	0	creek	S.C.
303021406	CTC 80	0	creek	S.C.
304021406	VAN 1	0	creek	S.C.
304021406	VAN 3	0	creek	S.C.
304021406	VAN 5	0	creek	S.C.
304021406	VAN 10	0	creek	S.C.
304021406	ERY 1	0	creek	S.C.
304021406	ERY 3	0	creek	S.C.
304021406	ERY 5	0	creek	S.C.
304021406	ERY 10	0	creek	S.C.
304021406	STR 20	2	creek	S.C.
304021406	STR 40	0	creek	S.C.
304021406	STR 60	0	creek	S.C.
304021406	STR 80	0	creek	S.C.
304021406	OTC 20	2	creek	S.C.
304021406	OTC 40	2	creek	S.C.
304021406	OTC 60	2	creek	S.C.
304021406	OTC 80	1	creek	S.C.
304021406	CTC 20	2	creek	S.C.
304021406	CTC 40	2	creek	S.C.
304021406	CTC 60	2	creek	S.C.
304021406	CTC 80	1	creek	S.C.
305021406	VAN 1	2	creek	S.C.
305021406	VAN 3	2	creek	S.C.
305021406	VAN 5	0	creek	S.C.
305021406	VAN 10	0	creek	S.C.
305021406	ERY 1	2	creek	S.C.
305021406	ERY 3	0	creek	S.C.
305021406	ERY 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
305021406	ERY 10	0	creek	S.C.
305021406	STR 20	1	creek	S.C.
305021406	STR 40	0	creek	S.C.
305021406	STR 60	0	creek	S.C.
305021406	STR 80	0	creek	S.C.
305021406	OTC 20	0	creek	S.C.
305021406	OTC 40	0	creek	S.C.
305021406	OTC 60	0	creek	S.C.
305021406	OTC 80	0	creek	S.C.
305021406	CTC 20	0	creek	S.C.
305021406	CTC 40	0	creek	S.C.
305021406	CTC 60	0	creek	S.C.
305021406	CTC 80	0	creek	S.C.
401021406	VAN 1	0	creek	S.C.
401021406	VAN 3	0	creek	S.C.
401021406	VAN 5	0	creek	S.C.
401021406	VAN 10	0	creek	S.C.
401021406	ERY 1	0	creek	S.C.
401021406	ERY 3	0	creek	S.C.
401021406	ERY 5	0	creek	S.C.
401021406	ERY 10	0	creek	S.C.
401021406	STR 20	1	creek	S.C.
401021406	STR 40	0	creek	S.C.
401021406	STR 60	0	creek	S.C.
401021406	STR 80	0	creek	S.C.
401021406	OTC 20	2	creek	S.C.
401021406	OTC 40	2	creek	S.C.
401021406	OTC 60	2	creek	S.C.
401021406	OTC 80	1	creek	S.C.
401021406	CTC 20	2	creek	S.C.
401021406	CTC 40	2	creek	S.C.
401021406	CTC 60	2	creek	S.C.
401021406	CTC 80	1	creek	S.C.
402021406	VAN 1	0	creek	S.C.
402021406	VAN 3	0	creek	S.C.
402021406	VAN 5	0	creek	S.C.
402021406	VAN 10	0	creek	S.C.
402021406	ERY 1	0	creek	S.C.
402021406	ERY 3	0	creek	S.C.
402021406	ERY 5	0	creek	S.C.
402021406	ERY 10	0	creek	S.C.
402021406	STR 20	2	creek	S.C.
402021406	STR 40	2	creek	S.C.
402021406	STR 60	1	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
402021406	STR 80	0	creek	S.C.
402021406	OTC 20	2	creek	S.C.
402021406	OTC 40	2	creek	S.C.
402021406	OTC 60	1	creek	S.C.
402021406	OTC 80	0	creek	S.C.
402021406	CTC 20	1	creek	S.C.
402021406	CTC 40	0	creek	S.C.
402021406	CTC 60	0	creek	S.C.
402021406	CTC 80	0	creek	S.C.
403021406	VAN 1	0	creek	S.C.
403021406	VAN 3	0	creek	S.C.
403021406	VAN 5	0	creek	S.C.
403021406	VAN 10	0	creek	S.C.
403021406	ERY 1	0	creek	S.C.
403021406	ERY 3	0	creek	S.C.
403021406	ERY 5	0	creek	S.C.
403021406	ERY 10	0	creek	S.C.
403021406	STR 20	2	creek	S.C.
403021406	STR 40	1	creek	S.C.
403021406	STR 60	0	creek	S.C.
403021406	STR 80	0	creek	S.C.
403021406	OTC 20	2	creek	S.C.
403021406	OTC 40	2	creek	S.C.
403021406	OTC 60	1	creek	S.C.
403021406	OTC 80	1	creek	S.C.
403021406	CTC 20	1	creek	S.C.
403021406	CTC 40	0	creek	S.C.
403021406	CTC 60	0	creek	S.C.
403021406	CTC 80	0	creek	S.C.
404021406	VAN 1	2	creek	S.C.
404021406	VAN 3	2	creek	S.C.
404021406	VAN 5	2	creek	S.C.
404021406	VAN 10	2	creek	S.C.
404021406	ERY 1	0	creek	S.C.
404021406	ERY 3	0	creek	S.C.
404021406	ERY 5	0	creek	S.C.
404021406	ERY 10	0	creek	S.C.
404021406	STR 20	0	creek	S.C.
404021406	STR 40	0	creek	S.C.
404021406	STR 60	0	creek	S.C.
404021406	STR 80	0	creek	S.C.
404021406	OTC 20	2	creek	S.C.
404021406	OTC 40	1	creek	S.C.
404021406	OTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
404021406	OTC 80	0	creek	S.C.
404021406	CTC 20	1	creek	S.C.
404021406	CTC 40	0	creek	S.C.
404021406	CTC 60	0	creek	S.C.
404021406	CTC 80	0	creek	S.C.
405021406	VAN 1	0	creek	S.C.
405021406	VAN 3	0	creek	S.C.
405021406	VAN 5	0	creek	S.C.
405021406	VAN 10	0	creek	S.C.
405021406	ERY 1	0	creek	S.C.
405021406	ERY 3	0	creek	S.C.
405021406	ERY 5	0	creek	S.C.
405021406	ERY 10	0	creek	S.C.
405021406	STR 20	2	creek	S.C.
405021406	STR 40	2	creek	S.C.
405021406	STR 60	1	creek	S.C.
405021406	STR 80	0	creek	S.C.
405021406	OTC 20	2	creek	S.C.
405021406	OTC 40	2	creek	S.C.
405021406	OTC 60	1	creek	S.C.
405021406	OTC 80	0	creek	S.C.
405021406	CTC 20	1	creek	S.C.
405021406	CTC 40	0	creek	S.C.
405021406	CTC 60	0	creek	S.C.
405021406	CTC 80	0	creek	S.C.
501021406	VAN 1	0	creek	S.C.
501021406	VAN 3	0	creek	S.C.
501021406	VAN 5	0	creek	S.C.
501021406	VAN 10	0	creek	S.C.
501021406	ERY 1	1	creek	S.C.
501021406	ERY 3	0	creek	S.C.
501021406	ERY 5	0	creek	S.C.
501021406	ERY 10	0	creek	S.C.
501021406	STR 20	2	creek	S.C.
501021406	STR 40	1	creek	S.C.
501021406	STR 60	0	creek	S.C.
501021406	STR 80	0	creek	S.C.
501021406	OTC 20	2	creek	S.C.
501021406	OTC 40	1	creek	S.C.
501021406	OTC 60	0	creek	S.C.
501021406	OTC 80	0	creek	S.C.
501021406	CTC 20	2	creek	S.C.
501021406	CTC 40	1	creek	S.C.
501021406	CTC 60	1	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
501021406	CTC 80	0	creek	S.C.
503021406	VAN 1	none	creek	S.C.
503021406	VAN 3	none	creek	S.C.
503021406	VAN 5	none	creek	S.C.
503021406	VAN 10	none	creek	S.C.
503021406	ERY 1	none	creek	S.C.
503021406	ERY 3	none	creek	S.C.
503021406	ERY 5	none	creek	S.C.
503021406	ERY 10	none	creek	S.C.
503021406	STR 20	none	creek	S.C.
503021406	STR 40	none	creek	S.C.
503021406	STR 60	none	creek	S.C.
503021406	STR 80	none	creek	S.C.
503021406	OTC 20	none	creek	S.C.
503021406	OTC 40	none	creek	S.C.
503021406	OTC 60	none	creek	S.C.
503021406	OTC 80	none	creek	S.C.
503021406	CTC 20	none	creek	S.C.
503021406	CTC 40	none	creek	S.C.
503021406	CTC 60	none	creek	S.C.
503021406	CTC 80	none	creek	S.C.
504021406	VAN 1	0	creek	S.C.
504021406	VAN 3	0	creek	S.C.
504021406	VAN 5	0	creek	S.C.
504021406	VAN 10	0	creek	S.C.
504021406	ERY 1	1	creek	S.C.
504021406	ERY 3	0	creek	S.C.
504021406	ERY 5	0	creek	S.C.
504021406	ERY 10	0	creek	S.C.
504021406	STR 20	1	creek	S.C.
504021406	STR 40	0	creek	S.C.
504021406	STR 60	0	creek	S.C.
504021406	STR 80	0	creek	S.C.
504021406	OTC 20	2	creek	S.C.
504021406	OTC 40	2	creek	S.C.
504021406	OTC 60	2	creek	S.C.
504021406	OTC 80	1	creek	S.C.
504021406	CTC 20	2	creek	S.C.
504021406	CTC 40	1	creek	S.C.
504021406	CTC 60	1	creek	S.C.
504021406	CTC 80	0	creek	S.C.
505021406	VAN 1	0	creek	S.C.
505021406	VAN 3	0	creek	S.C.
505021406	VAN 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
505021406	VAN 10	0	creek	S.C.
505021406	ERY 1	0	creek	S.C.
505021406	ERY 3	0	creek	S.C.
505021406	ERY 5	0	creek	S.C.
505021406	ERY 10	0	creek	S.C.
505021406	STR 20	2	creek	S.C.
505021406	STR 40	2	creek	S.C.
505021406	STR 60	1	creek	S.C.
505021406	STR 80	1	creek	S.C.
505021406	OTC 20	0	creek	S.C.
505021406	OTC 40	0	creek	S.C.
505021406	OTC 60	0	creek	S.C.
505021406	OTC 80	0	creek	S.C.
505021406	CTC 20	0	creek	S.C.
505021406	CTC 40	0	creek	S.C.
505021406	CTC 60	0	creek	S.C.
505021406	CTC 80	0	creek	S.C.
601021406	VAN 1	0	creek	S.C.
601021406	VAN 3	0	creek	S.C.
601021406	VAN 5	0	creek	S.C.
601021406	VAN 10	0	creek	S.C.
601021406	ERY 1	0	creek	S.C.
601021406	ERY 3	0	creek	S.C.
601021406	ERY 5	0	creek	S.C.
601021406	ERY 10	0	creek	S.C.
601021406	STR 20	2	creek	S.C.
601021406	STR 40	0	creek	S.C.
601021406	STR 60	0	creek	S.C.
601021406	STR 80	0	creek	S.C.
601021406	OTC 20	0	creek	S.C.
601021406	OTC 40	0	creek	S.C.
601021406	OTC 60	0	creek	S.C.
601021406	OTC 80	0	creek	S.C.
601021406	CTC 20	1	creek	S.C.
601021406	CTC 40	0	creek	S.C.
601021406	CTC 60	0	creek	S.C.
601021406	CTC 80	0	creek	S.C.
602021406	VAN 1	0	creek	S.C.
602021406	VAN 3	0	creek	S.C.
602021406	VAN 5	0	creek	S.C.
602021406	VAN 10	0	creek	S.C.
602021406	ERY 1	0	creek	S.C.
602021406	ERY 3	0	creek	S.C.
602021406	ERY 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
602021406	ERY 10	0	creek	S.C.
602021406	STR 20	2	creek	S.C.
602021406	STR 40	0	creek	S.C.
602021406	STR 60	0	creek	S.C.
602021406	STR 80	0	creek	S.C.
602021406	OTC 20	2	creek	S.C.
602021406	OTC 40	2	creek	S.C.
602021406	OTC 60	1	creek	S.C.
602021406	OTC 80	1	creek	S.C.
602021406	CTC 20	1	creek	S.C.
602021406	CTC 40	0	creek	S.C.
602021406	CTC 60	0	creek	S.C.
602021406	CTC 80	0	creek	S.C.
603021406	VAN 1	0	creek	S.C.
603021406	VAN 3	0	creek	S.C.
603021406	VAN 5	0	creek	S.C.
603021406	VAN 10	0	creek	S.C.
603021406	ERY 1	0	creek	S.C.
603021406	ERY 3	0	creek	S.C.
603021406	ERY 5	0	creek	S.C.
603021406	ERY 10	0	creek	S.C.
603021406	STR 20	2	creek	S.C.
603021406	STR 40	0	creek	S.C.
603021406	STR 60	0	creek	S.C.
603021406	STR 80	0	creek	S.C.
603021406	OTC 20	2	creek	S.C.
603021406	OTC 40	2	creek	S.C.
603021406	OTC 60	1	creek	S.C.
603021406	OTC 80	0	creek	S.C.
603021406	CTC 20	1	creek	S.C.
603021406	CTC 40	0	creek	S.C.
603021406	CTC 60	0	creek	S.C.
603021406	CTC 80	0	creek	S.C.
604021406	VAN 1	0	creek	S.C.
604021406	VAN 3	0	creek	S.C.
604021406	VAN 5	0	creek	S.C.
604021406	VAN 10	0	creek	S.C.
604021406	ERY 1	0	creek	S.C.
604021406	ERY 3	0	creek	S.C.
604021406	ERY 5	0	creek	S.C.
604021406	ERY 10	0	creek	S.C.
604021406	STR 20	2	creek	S.C.
604021406	STR 40	1	creek	S.C.
604021406	STR 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
604021406	STR 80	0	creek	S.C.
604021406	OTC 20	1	creek	S.C.
604021406	OTC 40	1	creek	S.C.
604021406	OTC 60	1	creek	S.C.
604021406	OTC 80	0	creek	S.C.
604021406	CTC 20	1	creek	S.C.
604021406	CTC 40	0	creek	S.C.
604021406	CTC 60	0	creek	S.C.
604021406	CTC 80	0	creek	S.C.
605021406	VAN 1	0	creek	S.C.
605021406	VAN 3	0	creek	S.C.
605021406	VAN 5	0	creek	S.C.
605021406	VAN 10	0	creek	S.C.
605021406	ERY 1	0	creek	S.C.
605021406	ERY 3	0	creek	S.C.
605021406	ERY 5	0	creek	S.C.
605021406	ERY 10	0	creek	S.C.
605021406	STR 20	2	creek	S.C.
605021406	STR 40	1	creek	S.C.
605021406	STR 60	0	creek	S.C.
605021406	STR 80	0	creek	S.C.
605021406	OTC 20	2	creek	S.C.
605021406	OTC 40	2	creek	S.C.
605021406	OTC 60	2	creek	S.C.
605021406	OTC 80	1	creek	S.C.
605021406	CTC 20	1	creek	S.C.
605021406	CTC 40	0	creek	S.C.
605021406	CTC 60	0	creek	S.C.
605021406	CTC 80	0	creek	S.C.
701021406	VAN 1	0	creek	S.C.
701021406	VAN 3	0	creek	S.C.
701021406	VAN 5	0	creek	S.C.
701021406	VAN 10	0	creek	S.C.
701021406	ERY 1	0	creek	S.C.
701021406	ERY 3	0	creek	S.C.
701021406	ERY 5	0	creek	S.C.
701021406	ERY 10	0	creek	S.C.
701021406	STR 20	2	creek	S.C.
701021406	STR 40	1	creek	S.C.
701021406	STR 60	0	creek	S.C.
701021406	STR 80	0	creek	S.C.
701021406	OTC 20	2	creek	S.C.
701021406	OTC 40	2	creek	S.C.
701021406	OTC 60	2	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
701021406	OTC 80	1	creek	S.C.
701021406	CTC 20	2	creek	S.C.
701021406	CTC 40	2	creek	S.C.
701021406	CTC 60	1	creek	S.C.
701021406	CTC 80	1	creek	S.C.
801021406	VAN 1	2	creek	S.C.
801021406	VAN 3	0	creek	S.C.
801021406	VAN 5	0	creek	S.C.
801021406	VAN 10	0	creek	S.C.
801021406	ERY 1	0	creek	S.C.
801021406	ERY 3	0	creek	S.C.
801021406	ERY 5	0	creek	S.C.
801021406	ERY 10	0	creek	S.C.
801021406	STR 20	1	creek	S.C.
801021406	STR 40	0	creek	S.C.
801021406	STR 60	0	creek	S.C.
801021406	STR 80	0	creek	S.C.
801021406	OTC 20	0	creek	S.C.
801021406	OTC 40	0	creek	S.C.
801021406	OTC 60	0	creek	S.C.
801021406	OTC 80	0	creek	S.C.
801021406	CTC 20	0	creek	S.C.
801021406	CTC 40	0	creek	S.C.
801021406	CTC 60	0	creek	S.C.
801021406	CTC 80	0	creek	S.C.
802021406	VAN 1	2	creek	S.C.
802021406	VAN 3	2	creek	S.C.
802021406	VAN 5	0	creek	S.C.
802021406	VAN 10	0	creek	S.C.
802021406	ERY 1	0	creek	S.C.
802021406	ERY 3	0	creek	S.C.
802021406	ERY 5	0	creek	S.C.
802021406	ERY 10	0	creek	S.C.
802021406	STR 20	2	creek	S.C.
802021406	STR 40	0	creek	S.C.
802021406	STR 60	0	creek	S.C.
802021406	STR 80	0	creek	S.C.
802021406	OTC 20	0	creek	S.C.
802021406	OTC 40	0	creek	S.C.
802021406	OTC 60	0	creek	S.C.
802021406	OTC 80	0	creek	S.C.
802021406	CTC 20	0	creek	S.C.
802021406	CTC 40	0	creek	S.C.
802021406	CTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
802021406	CTC 80	2	creek	S.C.
901021406	VAN 1	1	creek	S.C.
901021406	VAN 3	0	creek	S.C.
901021406	VAN 5	0	creek	S.C.
901021406	VAN 10	0	creek	S.C.
901021406	ERY 1	0	creek	S.C.
901021406	ERY 3	0	creek	S.C.
901021406	ERY 5	0	creek	S.C.
901021406	ERY 10	0	creek	S.C.
901021406	STR 20	1	creek	S.C.
901021406	STR 40	0	creek	S.C.
901021406	STR 60	0	creek	S.C.
901021406	STR 80	0	creek	S.C.
901021406	OTC 20	0	creek	S.C.
901021406	OTC 40	0	creek	S.C.
901021406	OTC 60	0	creek	S.C.
901021406	OTC 80	0	creek	S.C.
901021406	CTC 20	0	creek	S.C.
901021406	CTC 40	0	creek	S.C.
901021406	CTC 60	0	creek	S.C.
901021406	CTC 80	0	creek	S.C.
902021406	VAN 1	0	creek	S.C.
902021406	VAN 3	0	creek	S.C.
902021406	VAN 5	0	creek	S.C.
902021406	VAN 10	0	creek	S.C.
902021406	ERY 1	0	creek	S.C.
902021406	ERY 3	0	creek	S.C.
902021406	ERY 5	0	creek	S.C.
902021406	ERY 10	0	creek	S.C.
902021406	STR 20	2	creek	S.C.
902021406	STR 40	1	creek	S.C.
902021406	STR 60	0	creek	S.C.
902021406	STR 80	0	creek	S.C.
902021406	OTC 20	0	creek	S.C.
902021406	OTC 40	0	creek	S.C.
902021406	OTC 60	0	creek	S.C.
902021406	OTC 80	0	creek	S.C.
902021406	CTC 20	0	creek	S.C.
902021406	CTC 40	0	creek	S.C.
902021406	CTC 60	0	creek	S.C.
902021406	CTC 80	0	creek	S.C.
903021406	VAN 1	0	creek	S.C.
903021406	VAN 3	0	creek	S.C.
903021406	VAN 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
903021406	VAN 10	0	creek	S.C.
903021406	ERY 1	0	creek	S.C.
903021406	ERY 3	0	creek	S.C.
903021406	ERY 5	0	creek	S.C.
903021406	ERY 10	0	creek	S.C.
903021406	STR 20	2	creek	S.C.
903021406	STR 40	1	creek	S.C.
903021406	STR 60	1	creek	S.C.
903021406	STR 80	0	creek	S.C.
903021406	OTC 20	0	creek	S.C.
903021406	OTC 40	0	creek	S.C.
903021406	OTC 60	0	creek	S.C.
903021406	OTC 80	0	creek	S.C.
903021406	CTC 20	0	creek	S.C.
903021406	CTC 40	0	creek	S.C.
903021406	CTC 60	0	creek	S.C.
903021406	CTC 80	0	creek	S.C.
904021406	VAN 1	none	creek	S.C.
904021406	VAN 3	none	creek	S.C.
904021406	VAN 5	none	creek	S.C.
904021406	VAN 10	none	creek	S.C.
904021406	ERY 1	none	creek	S.C.
904021406	ERY 3	none	creek	S.C.
904021406	ERY 5	none	creek	S.C.
904021406	ERY 10	none	creek	S.C.
904021406	STR 20	none	creek	S.C.
904021406	STR 40	none	creek	S.C.
904021406	STR 60	none	creek	S.C.
904021406	STR 80	none	creek	S.C.
904021406	OTC 20	none	creek	S.C.
904021406	OTC 40	none	creek	S.C.
904021406	OTC 60	none	creek	S.C.
904021406	OTC 80	none	creek	S.C.
904021406	CTC 20	none	creek	S.C.
904021406	CTC 40	none	creek	S.C.
904021406	CTC 60	none	creek	S.C.
904021406	CTC 80	none	creek	S.C.
905021406	VAN 1	0	creek	S.C.
905021406	VAN 3	0	creek	S.C.
905021406	VAN 5	0	creek	S.C.
905021406	VAN 10	0	creek	S.C.
905021406	ERY 1	0	creek	S.C.
905021406	ERY 3	0	creek	S.C.
905021406	ERY 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
905021406	ERY 10	0	creek	S.C.
905021406	STR 20	2	creek	S.C.
905021406	STR 40	2	creek	S.C.
905021406	STR 60	1	creek	S.C.
905021406	STR 80	0	creek	S.C.
905021406	OTC 20	0	creek	S.C.
905021406	OTC 40	0	creek	S.C.
905021406	OTC 60	0	creek	S.C.
905021406	OTC 80	0	creek	S.C.
905021406	CTC 20	0	creek	S.C.
905021406	CTC 40	0	creek	S.C.
905021406	CTC 60	0	creek	S.C.
905021406	CTC 80	0	creek	S.C.
1001021406	VAN 1	1	creek	S.C.
1001021406	VAN 3	1	creek	S.C.
1001021406	VAN 5	0	creek	S.C.
1001021406	VAN 10	0	creek	S.C.
1001021406	ERY 1	1	creek	S.C.
1001021406	ERY 3	0	creek	S.C.
1001021406	ERY 5	0	creek	S.C.
1001021406	ERY 10	0	creek	S.C.
1001021406	STR 20	2	creek	S.C.
1001021406	STR 40	2	creek	S.C.
1001021406	STR 60	1	creek	S.C.
1001021406	STR 80	1	creek	S.C.
1001021406	OTC 20	0	creek	S.C.
1001021406	OTC 40	0	creek	S.C.
1001021406	OTC 60	0	creek	S.C.
1001021406	OTC 80	0	creek	S.C.
1001021406	CTC 20	0	creek	S.C.
1001021406	CTC 40	0	creek	S.C.
1001021406	CTC 60	0	creek	S.C.
1001021406	CTC 80	0	creek	S.C.
1002021406	VAN 1	2	creek	S.C.
1002021406	VAN 3	2	creek	S.C.
1002021406	VAN 5	0	creek	S.C.
1002021406	VAN 10	0	creek	S.C.
1002021406	ERY 1	2	creek	S.C.
1002021406	ERY 3	0	creek	S.C.
1002021406	ERY 5	0	creek	S.C.
1002021406	ERY 10	0	creek	S.C.
1002021406	STR 20	2	creek	S.C.
1002021406	STR 40	1	creek	S.C.
1002021406	STR 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1002021406	STR 80	0	creek	S.C.
1002021406	OTC 20	0	creek	S.C.
1002021406	OTC 40	0	creek	S.C.
1002021406	OTC 60	0	creek	S.C.
1002021406	OTC 80	0	creek	S.C.
1002021406	CTC 20	0	creek	S.C.
1002021406	CTC 40	0	creek	S.C.
1002021406	CTC 60	0	creek	S.C.
1002021406	CTC 80	0	creek	S.C.
1003021406	VAN 1	0	creek	S.C.
1003021406	VAN 3	0	creek	S.C.
1003021406	VAN 5	0	creek	S.C.
1003021406	VAN 10	0	creek	S.C.
1003021406	ERY 1	0	creek	S.C.
1003021406	ERY 3	0	creek	S.C.
1003021406	ERY 5	0	creek	S.C.
1003021406	ERY 10	0	creek	S.C.
1003021406	STR 20	2	creek	S.C.
1003021406	STR 40	2	creek	S.C.
1003021406	STR 60	1	creek	S.C.
1003021406	STR 80	0	creek	S.C.
1003021406	OTC 20	0	creek	S.C.
1003021406	OTC 40	0	creek	S.C.
1003021406	OTC 60	0	creek	S.C.
1003021406	OTC 80	0	creek	S.C.
1003021406	CTC 20	0	creek	S.C.
1003021406	CTC 40	0	creek	S.C.
1003021406	CTC 60	0	creek	S.C.
1003021406	CTC 80	0	creek	S.C.
1004021406	VAN 1	2	creek	S.C.
1004021406	VAN 3	2	creek	S.C.
1004021406	VAN 5	0	creek	S.C.
1004021406	VAN 10	0	creek	S.C.
1004021406	ERY 1	0	creek	S.C.
1004021406	ERY 3	0	creek	S.C.
1004021406	ERY 5	0	creek	S.C.
1004021406	ERY 10	0	creek	S.C.
1004021406	STR 20	0	creek	S.C.
1004021406	STR 40	0	creek	S.C.
1004021406	STR 60	0	creek	S.C.
1004021406	STR 80	0	creek	S.C.
1004021406	OTC 20	0	creek	S.C.
1004021406	OTC 40	0	creek	S.C.
1004021406	OTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1004021406	OTC 80	0	creek	S.C.
1004021406	CTC 20	1	creek	S.C.
1004021406	CTC 40	0	creek	S.C.
1004021406	CTC 60	0	creek	S.C.
1004021406	CTC 80	0	creek	S.C.
1201021406	VAN 1	0	creek	S.C.
1201021406	VAN 3	0	creek	S.C.
1201021406	VAN 5	0	creek	S.C.
1201021406	VAN 10	0	creek	S.C.
1201021406	ERY 1	2	creek	S.C.
1201021406	ERY 3	1	creek	S.C.
1201021406	ERY 5	0	creek	S.C.
1201021406	ERY 10	0	creek	S.C.
1201021406	STR 20	2	creek	S.C.
1201021406	STR 40	1	creek	S.C.
1201021406	STR 60	0	creek	S.C.
1201021406	STR 80	0	creek	S.C.
1201021406	OTC 20	2	creek	S.C.
1201021406	OTC 40	2	creek	S.C.
1201021406	OTC 60	2	creek	S.C.
1201021406	OTC 80	1	creek	S.C.
1201021406	CTC 20	2	creek	S.C.
1201021406	CTC 40	1	creek	S.C.
1201021406	CTC 60	1	creek	S.C.
1201021406	CTC 80	1	creek	S.C.
1202021406	VAN 1	none	creek	S.C.
1202021406	VAN 3	none	creek	S.C.
1202021406	VAN 5	none	creek	S.C.
1202021406	VAN 10	none	creek	S.C.
1202021406	ERY 1	none	creek	S.C.
1202021406	ERY 3	none	creek	S.C.
1202021406	ERY 5	none	creek	S.C.
1202021406	ERY 10	none	creek	S.C.
1202021406	STR 20	none	creek	S.C.
1202021406	STR 40	none	creek	S.C.
1202021406	STR 60	none	creek	S.C.
1202021406	STR 80	none	creek	S.C.
1202021406	OTC 20	none	creek	S.C.
1202021406	OTC 40	none	creek	S.C.
1202021406	OTC 60	none	creek	S.C.
1202021406	OTC 80	none	creek	S.C.
1202021406	CTC 20	none	creek	S.C.
1202021406	CTC 40	none	creek	S.C.
1202021406	CTC 60	none	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1202021406	CTC 80	none	creek	S.C.
1401021406	VAN 1	none	creek	S.C.
1401021406	VAN 3	none	creek	S.C.
1401021406	VAN 5	none	creek	S.C.
1401021406	VAN 10	none	creek	S.C.
1401021406	ERY 1	none	creek	S.C.
1401021406	ERY 3	none	creek	S.C.
1401021406	ERY 5	none	creek	S.C.
1401021406	ERY 10	none	creek	S.C.
1401021406	STR 20	none	creek	S.C.
1401021406	STR 40	none	creek	S.C.
1401021406	STR 60	none	creek	S.C.
1401021406	STR 80	none	creek	S.C.
1401021406	OTC 20	none	creek	S.C.
1401021406	OTC 40	none	creek	S.C.
1401021406	OTC 60	none	creek	S.C.
1401021406	OTC 80	none	creek	S.C.
1401021406	CTC 20	none	creek	S.C.
1401021406	CTC 40	none	creek	S.C.
1401021406	CTC 60	none	creek	S.C.
1401021406	CTC 80	none	creek	S.C.
101051706	VAN 1	0	creek	S.C.
101051706	VAN 3	0	creek	S.C.
101051706	VAN 5	0	creek	S.C.
101051706	VAN 10	0	creek	S.C.
101051706	ERY 1	0	creek	S.C.
101051706	ERY 3	0	creek	S.C.
101051706	ERY 5	0	creek	S.C.
101051706	ERY 10	0	creek	S.C.
101051706	STR 20	2	creek	S.C.
101051706	STR 40	0	creek	S.C.
101051706	STR 60	0	creek	S.C.
101051706	STR 80	0	creek	S.C.
101051706	OTC 20	2	creek	S.C.
101051706	OTC 40	2	creek	S.C.
101051706	OTC 60	2	creek	S.C.
101051706	OTC 80	2	creek	S.C.
101051706	CTC 20	2	creek	S.C.
101051706	CTC 40	2	creek	S.C.
101051706	CTC 60	2	creek	S.C.
101051706	CTC 80	1	creek	S.C.
102051706	VAN 1	0	creek	S.C.
102051706	VAN 3	0	creek	S.C.
102051706	VAN 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
102051706	VAN 10	0	creek	S.C.
102051706	ERY 1	0	creek	S.C.
102051706	ERY 3	0	creek	S.C.
102051706	ERY 5	0	creek	S.C.
102051706	ERY 10	0	creek	S.C.
102051706	STR 20	2	creek	S.C.
102051706	STR 40	2	creek	S.C.
102051706	STR 60	1	creek	S.C.
102051706	STR 80	1	creek	S.C.
102051706	OTC 20	0	creek	S.C.
102051706	OTC 40	0	creek	S.C.
102051706	OTC 60	0	creek	S.C.
102051706	OTC 80	0	creek	S.C.
102051706	CTC 20	0	creek	S.C.
102051706	CTC 40	0	creek	S.C.
102051706	CTC 60	0	creek	S.C.
102051706	CTC 80	0	creek	S.C.
103051706	VAN 1	0	creek	S.C.
103051706	VAN 3	0	creek	S.C.
103051706	VAN 5	0	creek	S.C.
103051706	VAN 10	0	creek	S.C.
103051706	ERY 1	1	creek	S.C.
103051706	ERY 3	0	creek	S.C.
103051706	ERY 5	0	creek	S.C.
103051706	ERY 10	0	creek	S.C.
103051706	STR 20	2	creek	S.C.
103051706	STR 40	2	creek	S.C.
103051706	STR 60	1	creek	S.C.
103051706	STR 80	1	creek	S.C.
103051706	OTC 20	0	creek	S.C.
103051706	OTC 40	0	creek	S.C.
103051706	OTC 60	0	creek	S.C.
103051706	OTC 80	0	creek	S.C.
103051706	CTC 20	0	creek	S.C.
103051706	CTC 40	0	creek	S.C.
103051706	CTC 60	0	creek	S.C.
103051706	CTC 80	0	creek	S.C.
106051706	VAN 1	2	creek	S.C.
106051706	VAN 3	2	creek	S.C.
106051706	VAN 5	0	creek	S.C.
106051706	VAN 10	0	creek	S.C.
106051706	ERY 1	2	creek	S.C.
106051706	ERY 3	0	creek	S.C.
106051706	ERY 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
106051706	ERY 10	0	creek	S.C.
106051706	STR 20	0	creek	S.C.
106051706	STR 40	0	creek	S.C.
106051706	STR 60	0	creek	S.C.
106051706	STR 80	0	creek	S.C.
106051706	OTC 20	0	creek	S.C.
106051706	OTC 40	0	creek	S.C.
106051706	OTC 60	0	creek	S.C.
106051706	OTC 80	0	creek	S.C.
106051706	CTC 20	0	creek	S.C.
106051706	CTC 40	0	creek	S.C.
106051706	CTC 60	0	creek	S.C.
106051706	CTC 80	0	creek	S.C.
107051706	VAN 1	2	creek	S.C.
107051706	VAN 3	2	creek	S.C.
107051706	VAN 5	0	creek	S.C.
107051706	VAN 10	0	creek	S.C.
107051706	ERY 1	2	creek	S.C.
107051706	ERY 3	1	creek	S.C.
107051706	ERY 5	0	creek	S.C.
107051706	ERY 10	0	creek	S.C.
107051706	STR 20	2	creek	S.C.
107051706	STR 40	1	creek	S.C.
107051706	STR 60	0	creek	S.C.
107051706	STR 80	0	creek	S.C.
107051706	OTC 20	0	creek	S.C.
107051706	OTC 40	0	creek	S.C.
107051706	OTC 60	0	creek	S.C.
107051706	OTC 80	0	creek	S.C.
107051706	CTC 20	0	creek	S.C.
107051706	CTC 40	0	creek	S.C.
107051706	CTC 60	0	creek	S.C.
107051706	CTC 80	0	creek	S.C.
201051706	VAN 1	1	creek	S.C.
201051706	VAN 3	1	creek	S.C.
201051706	VAN 5	0	creek	S.C.
201051706	VAN 10	0	creek	S.C.
201051706	ERY 1	1	creek	S.C.
201051706	ERY 3	0	creek	S.C.
201051706	ERY 5	0	creek	S.C.
201051706	ERY 10	0	creek	S.C.
201051706	STR 20	2	creek	S.C.
201051706	STR 40	2	creek	S.C.
201051706	STR 60	1	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
201051706	STR 80	0	creek	S.C.
201051706	OTC 20	0	creek	S.C.
201051706	OTC 40	0	creek	S.C.
201051706	OTC 60	0	creek	S.C.
201051706	OTC 80	0	creek	S.C.
201051706	CTC 20	0	creek	S.C.
201051706	CTC 40	0	creek	S.C.
201051706	CTC 60	0	creek	S.C.
201051706	CTC 80	0	creek	S.C.
202051706	VAN 1	0	creek	S.C.
202051706	VAN 3	0	creek	S.C.
202051706	VAN 5	0	creek	S.C.
202051706	VAN 10	0	creek	S.C.
202051706	ERY 1	0	creek	S.C.
202051706	ERY 3	0	creek	S.C.
202051706	ERY 5	0	creek	S.C.
202051706	ERY 10	0	creek	S.C.
202051706	STR 20	2	creek	S.C.
202051706	STR 40	2	creek	S.C.
202051706	STR 60	1	creek	S.C.
202051706	STR 80	0	creek	S.C.
202051706	OTC 20	0	creek	S.C.
202051706	OTC 40	0	creek	S.C.
202051706	OTC 60	0	creek	S.C.
202051706	OTC 80	0	creek	S.C.
202051706	CTC 20	0	creek	S.C.
202051706	CTC 40	0	creek	S.C.
202051706	CTC 60	0	creek	S.C.
202051706	CTC 80	0	creek	S.C.
203051706	VAN 1	2	creek	S.C.
203051706	VAN 3	2	creek	S.C.
203051706	VAN 5	0	creek	S.C.
203051706	VAN 10	0	creek	S.C.
203051706	ERY 1	2	creek	S.C.
203051706	ERY 3	0	creek	S.C.
203051706	ERY 5	0	creek	S.C.
203051706	ERY 10	0	creek	S.C.
203051706	STR 20	1	creek	S.C.
203051706	STR 40	1	creek	S.C.
203051706	STR 60	1	creek	S.C.
203051706	STR 80	0	creek	S.C.
203051706	OTC 20	0	creek	S.C.
203051706	OTC 40	0	creek	S.C.
203051706	OTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
203051706	OTC 80	0	creek	S.C.
203051706	CTC 20	0	creek	S.C.
203051706	CTC 40	0	creek	S.C.
203051706	CTC 60	0	creek	S.C.
203051706	CTC 80	0	creek	S.C.
204051706	VAN 1	2	creek	S.C.
204051706	VAN 3	2	creek	S.C.
204051706	VAN 5	0	creek	S.C.
204051706	VAN 10	0	creek	S.C.
204051706	ERY 1	2	creek	S.C.
204051706	ERY 3	2	creek	S.C.
204051706	ERY 5	0	creek	S.C.
204051706	ERY 10	0	creek	S.C.
204051706	STR 20	2	creek	S.C.
204051706	STR 40	0	creek	S.C.
204051706	STR 60	0	creek	S.C.
204051706	STR 80	0	creek	S.C.
204051706	OTC 20	0	creek	S.C.
204051706	OTC 40	0	creek	S.C.
204051706	OTC 60	0	creek	S.C.
204051706	OTC 80	0	creek	S.C.
204051706	CTC 20	0	creek	S.C.
204051706	CTC 40	0	creek	S.C.
204051706	CTC 60	0	creek	S.C.
204051706	CTC 80	0	creek	S.C.
205051706	VAN 1	2	creek	S.C.
205051706	VAN 3	0	creek	S.C.
205051706	VAN 5	0	creek	S.C.
205051706	VAN 10	0	creek	S.C.
205051706	ERY 1	2	creek	S.C.
205051706	ERY 3	2	creek	S.C.
205051706	ERY 5	1	creek	S.C.
205051706	ERY 10	1	creek	S.C.
205051706	STR 20	1	creek	S.C.
205051706	STR 40	1	creek	S.C.
205051706	STR 60	1	creek	S.C.
205051706	STR 80	0	creek	S.C.
205051706	OTC 20	2	creek	S.C.
205051706	OTC 40	2	creek	S.C.
205051706	OTC 60	1	creek	S.C.
205051706	OTC 80	1	creek	S.C.
205051706	CTC 20	1	creek	S.C.
205051706	CTC 40	0	creek	S.C.
205051706	CTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
205051706	CTC 80	0	creek	S.C.
206051706	VAN 1	2	creek	S.C.
206051706	VAN 3	2	creek	S.C.
206051706	VAN 5	0	creek	S.C.
206051706	VAN 10	0	creek	S.C.
206051706	ERY 1	0	creek	S.C.
206051706	ERY 3	0	creek	S.C.
206051706	ERY 5	0	creek	S.C.
206051706	ERY 10	0	creek	S.C.
206051706	STR 20	2	creek	S.C.
206051706	STR 40	0	creek	S.C.
206051706	STR 60	0	creek	S.C.
206051706	STR 80	0	creek	S.C.
206051706	OTC 20	0	creek	S.C.
206051706	OTC 40	0	creek	S.C.
206051706	OTC 60	0	creek	S.C.
206051706	OTC 80	0	creek	S.C.
206051706	CTC 20	0	creek	S.C.
206051706	CTC 40	0	creek	S.C.
206051706	CTC 60	0	creek	S.C.
206051706	CTC 80	0	creek	S.C.
207051706	VAN 1	0	creek	S.C.
207051706	VAN 3	0	creek	S.C.
207051706	VAN 5	0	creek	S.C.
207051706	VAN 10	0	creek	S.C.
207051706	ERY 1	0	creek	S.C.
207051706	ERY 3	0	creek	S.C.
207051706	ERY 5	0	creek	S.C.
207051706	ERY 10	0	creek	S.C.
207051706	STR 20	2	creek	S.C.
207051706	STR 40	2	creek	S.C.
207051706	STR 60	1	creek	S.C.
207051706	STR 80	0	creek	S.C.
207051706	OTC 20	0	creek	S.C.
207051706	OTC 40	0	creek	S.C.
207051706	OTC 60	0	creek	S.C.
207051706	OTC 80	0	creek	S.C.
207051706	CTC 20	0	creek	S.C.
207051706	CTC 40	0	creek	S.C.
207051706	CTC 60	0	creek	S.C.
207051706	CTC 80	0	creek	S.C.
301051706	VAN 1	0	creek	S.C.
301051706	VAN 3	0	creek	S.C.
301051706	VAN 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
301051706	VAN 10	0	creek	S.C.
301051706	ERY 1	0	creek	S.C.
301051706	ERY 3	0	creek	S.C.
301051706	ERY 5	0	creek	S.C.
301051706	ERY 10	0	creek	S.C.
301051706	STR 20	2	creek	S.C.
301051706	STR 40	1	creek	S.C.
301051706	STR 60	0	creek	S.C.
301051706	STR 80	0	creek	S.C.
301051706	OTC 20	0	creek	S.C.
301051706	OTC 40	0	creek	S.C.
301051706	OTC 60	0	creek	S.C.
301051706	OTC 80	0	creek	S.C.
301051706	CTC 20	0	creek	S.C.
301051706	CTC 40	0	creek	S.C.
301051706	CTC 60	0	creek	S.C.
301051706	CTC 80	0	creek	S.C.
302051706	VAN 1	0	creek	S.C.
302051706	VAN 3	0	creek	S.C.
302051706	VAN 5	0	creek	S.C.
302051706	VAN 10	0	creek	S.C.
302051706	ERY 1	0	creek	S.C.
302051706	ERY 3	0	creek	S.C.
302051706	ERY 5	0	creek	S.C.
302051706	ERY 10	0	creek	S.C.
302051706	STR 20	2	creek	S.C.
302051706	STR 40	1	creek	S.C.
302051706	STR 60	1	creek	S.C.
302051706	STR 80	0	creek	S.C.
302051706	OTC 20	0	creek	S.C.
302051706	OTC 40	0	creek	S.C.
302051706	OTC 60	0	creek	S.C.
302051706	OTC 80	0	creek	S.C.
302051706	CTC 20	0	creek	S.C.
302051706	CTC 40	0	creek	S.C.
302051706	CTC 60	0	creek	S.C.
302051706	CTC 80	0	creek	S.C.
303051706	VAN 1	2	creek	S.C.
303051706	VAN 3	2	creek	S.C.
303051706	VAN 5	0	creek	S.C.
303051706	VAN 10	0	creek	S.C.
303051706	ERY 1	1	creek	S.C.
303051706	ERY 3	0	creek	S.C.
303051706	ERY 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
303051706	ERY 10	0	creek	S.C.
303051706	STR 20	1	creek	S.C.
303051706	STR 40	0	creek	S.C.
303051706	STR 60	0	creek	S.C.
303051706	STR 80	0	creek	S.C.
303051706	OTC 20	0	creek	S.C.
303051706	OTC 40	0	creek	S.C.
303051706	OTC 60	0	creek	S.C.
303051706	OTC 80	0	creek	S.C.
303051706	CTC 20	0	creek	S.C.
303051706	CTC 40	0	creek	S.C.
303051706	CTC 60	0	creek	S.C.
303051706	CTC 80	0	creek	S.C.
304051706	VAN 1	0	creek	S.C.
304051706	VAN 3	0	creek	S.C.
304051706	VAN 5	0	creek	S.C.
304051706	VAN 10	0	creek	S.C.
304051706	ERY 1	0	creek	S.C.
304051706	ERY 3	0	creek	S.C.
304051706	ERY 5	0	creek	S.C.
304051706	ERY 10	0	creek	S.C.
304051706	STR 20	2	creek	S.C.
304051706	STR 40	1	creek	S.C.
304051706	STR 60	1	creek	S.C.
304051706	STR 80	1	creek	S.C.
304051706	OTC 20	0	creek	S.C.
304051706	OTC 40	0	creek	S.C.
304051706	OTC 60	0	creek	S.C.
304051706	OTC 80	0	creek	S.C.
304051706	CTC 20	0	creek	S.C.
304051706	CTC 40	0	creek	S.C.
304051706	CTC 60	0	creek	S.C.
304051706	CTC 80	0	creek	S.C.
305051706	VAN 1	0	creek	S.C.
305051706	VAN 3	0	creek	S.C.
305051706	VAN 5	0	creek	S.C.
305051706	VAN 10	0	creek	S.C.
305051706	ERY 1	0	creek	S.C.
305051706	ERY 3	0	creek	S.C.
305051706	ERY 5	0	creek	S.C.
305051706	ERY 10	0	creek	S.C.
305051706	STR 20	1	creek	S.C.
305051706	STR 40	1	creek	S.C.
305051706	STR 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
305051706	STR 80	0	creek	S.C.
305051706	OTC 20	2	creek	S.C.
305051706	OTC 40	2	creek	S.C.
305051706	OTC 60	2	creek	S.C.
305051706	OTC 80	1	creek	S.C.
305051706	CTC 20	2	creek	S.C.
305051706	CTC 40	2	creek	S.C.
305051706	CTC 60	1	creek	S.C.
305051706	CTC 80	1	creek	S.C.
306051706	VAN 1	0	creek	S.C.
306051706	VAN 3	0	creek	S.C.
306051706	VAN 5	0	creek	S.C.
306051706	VAN 10	0	creek	S.C.
306051706	ERY 1	0	creek	S.C.
306051706	ERY 3	0	creek	S.C.
306051706	ERY 5	0	creek	S.C.
306051706	ERY 10	0	creek	S.C.
306051706	STR 20	2	creek	S.C.
306051706	STR 40	2	creek	S.C.
306051706	STR 60	1	creek	S.C.
306051706	STR 80	0	creek	S.C.
306051706	OTC 20	2	creek	S.C.
306051706	OTC 40	1	creek	S.C.
306051706	OTC 60	0	creek	S.C.
306051706	OTC 80	0	creek	S.C.
306051706	CTC 20	1	creek	S.C.
306051706	CTC 40	0	creek	S.C.
306051706	CTC 60	0	creek	S.C.
306051706	CTC 80	0	creek	S.C.
307051706	VAN 1	2	creek	S.C.
307051706	VAN 3	0	creek	S.C.
307051706	VAN 5	0	creek	S.C.
307051706	VAN 10	0	creek	S.C.
307051706	ERY 1	1	creek	S.C.
307051706	ERY 3	0	creek	S.C.
307051706	ERY 5	0	creek	S.C.
307051706	ERY 10	0	creek	S.C.
307051706	STR 20	2	creek	S.C.
307051706	STR 40	1	creek	S.C.
307051706	STR 60	1	creek	S.C.
307051706	STR 80	0	creek	S.C.
307051706	OTC 20	0	creek	S.C.
307051706	OTC 40	0	creek	S.C.
307051706	OTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
307051706	OTC 80	0	creek	S.C.
307051706	CTC 20	0	creek	S.C.
307051706	CTC 40	0	creek	S.C.
307051706	CTC 60	0	creek	S.C.
307051706	CTC 80	0	creek	S.C.
401051706	VAN 1	2	creek	S.C.
401051706	VAN 3	2	creek	S.C.
401051706	VAN 5	0	creek	S.C.
401051706	VAN 10	0	creek	S.C.
401051706	ERY 1	2	creek	S.C.
401051706	ERY 3	0	creek	S.C.
401051706	ERY 5	0	creek	S.C.
401051706	ERY 10	0	creek	S.C.
401051706	STR 20	1	creek	S.C.
401051706	STR 40	0	creek	S.C.
401051706	STR 60	0	creek	S.C.
401051706	STR 80	0	creek	S.C.
401051706	OTC 20	0	creek	S.C.
401051706	OTC 40	0	creek	S.C.
401051706	OTC 60	0	creek	S.C.
401051706	OTC 80	0	creek	S.C.
401051706	CTC 20	0	creek	S.C.
401051706	CTC 40	0	creek	S.C.
401051706	CTC 60	0	creek	S.C.
401051706	CTC 80	0	creek	S.C.
402051706	VAN 1	none	creek	S.C.
402051706	VAN 3	none	creek	S.C.
402051706	VAN 5	none	creek	S.C.
402051706	VAN 10	none	creek	S.C.
402051706	ERY 1	none	creek	S.C.
402051706	ERY 3	none	creek	S.C.
402051706	ERY 5	none	creek	S.C.
402051706	ERY 10	none	creek	S.C.
402051706	STR 20	none	creek	S.C.
402051706	STR 40	none	creek	S.C.
402051706	STR 60	none	creek	S.C.
402051706	STR 80	none	creek	S.C.
402051706	OTC 20	none	creek	S.C.
402051706	OTC 40	none	creek	S.C.
402051706	OTC 60	none	creek	S.C.
402051706	OTC 80	none	creek	S.C.
402051706	CTC 20	none	creek	S.C.
402051706	CTC 40	none	creek	S.C.
402051706	CTC 60	none	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
402051706	CTC 80	none	creek	S.C.
403051706	VAN 1	0	creek	S.C.
403051706	VAN 3	0	creek	S.C.
403051706	VAN 5	0	creek	S.C.
403051706	VAN 10	0	creek	S.C.
403051706	ERY 1	1	creek	S.C.
403051706	ERY 3	0	creek	S.C.
403051706	ERY 5	0	creek	S.C.
403051706	ERY 10	0	creek	S.C.
403051706	STR 20	2	creek	S.C.
403051706	STR 40	2	creek	S.C.
403051706	STR 60	1	creek	S.C.
403051706	STR 80	0	creek	S.C.
403051706	OTC 20	0	creek	S.C.
403051706	OTC 40	0	creek	S.C.
403051706	OTC 60	0	creek	S.C.
403051706	OTC 80	0	creek	S.C.
403051706	CTC 20	0	creek	S.C.
403051706	CTC 40	0	creek	S.C.
403051706	CTC 60	0	creek	S.C.
403051706	CTC 80	0	creek	S.C.
404051706	VAN 1	2	creek	S.C.
404051706	VAN 3	2	creek	S.C.
404051706	VAN 5	0	creek	S.C.
404051706	VAN 10	0	creek	S.C.
404051706	ERY 1	2	creek	S.C.
404051706	ERY 3	0	creek	S.C.
404051706	ERY 5	0	creek	S.C.
404051706	ERY 10	0	creek	S.C.
404051706	STR 20	2	creek	S.C.
404051706	STR 40	1	creek	S.C.
404051706	STR 60	1	creek	S.C.
404051706	STR 80	0	creek	S.C.
404051706	OTC 20	0	creek	S.C.
404051706	OTC 40	0	creek	S.C.
404051706	OTC 60	0	creek	S.C.
404051706	OTC 80	0	creek	S.C.
404051706	CTC 20	0	creek	S.C.
404051706	CTC 40	0	creek	S.C.
404051706	CTC 60	0	creek	S.C.
404051706	CTC 80	0	creek	S.C.
405051706	VAN 1	2	creek	S.C.
405051706	VAN 3	0	creek	S.C.
405051706	VAN 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
405051706	VAN 10	0	creek	S.C.
405051706	ERY 1	1	creek	S.C.
405051706	ERY 3	0	creek	S.C.
405051706	ERY 5	0	creek	S.C.
405051706	ERY 10	0	creek	S.C.
405051706	STR 20	2	creek	S.C.
405051706	STR 40	1	creek	S.C.
405051706	STR 60	1	creek	S.C.
405051706	STR 80	0	creek	S.C.
405051706	OTC 20	0	creek	S.C.
405051706	OTC 40	0	creek	S.C.
405051706	OTC 60	0	creek	S.C.
405051706	OTC 80	0	creek	S.C.
405051706	CTC 20	0	creek	S.C.
405051706	CTC 40	0	creek	S.C.
405051706	CTC 60	0	creek	S.C.
405051706	CTC 80	0	creek	S.C.
406051706	VAN 1	2	creek	S.C.
406051706	VAN 3	2	creek	S.C.
406051706	VAN 5	0	creek	S.C.
406051706	VAN 10	0	creek	S.C.
406051706	ERY 1	2	creek	S.C.
406051706	ERY 3	1	creek	S.C.
406051706	ERY 5	0	creek	S.C.
406051706	ERY 10	0	creek	S.C.
406051706	STR 20	1	creek	S.C.
406051706	STR 40	0	creek	S.C.
406051706	STR 60	0	creek	S.C.
406051706	STR 80	0	creek	S.C.
406051706	OTC 20	0	creek	S.C.
406051706	OTC 40	0	creek	S.C.
406051706	OTC 60	0	creek	S.C.
406051706	OTC 80	0	creek	S.C.
406051706	CTC 20	0	creek	S.C.
406051706	CTC 40	0	creek	S.C.
406051706	CTC 60	0	creek	S.C.
406051706	CTC 80	0	creek	S.C.
407051706	VAN 1	0	creek	S.C.
407051706	VAN 3	0	creek	S.C.
407051706	VAN 5	0	creek	S.C.
407051706	VAN 10	0	creek	S.C.
407051706	ERY 1	0	creek	S.C.
407051706	ERY 3	0	creek	S.C.
407051706	ERY 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
407051706	ERY 10	0	creek	S.C.
407051706	STR 20	2	creek	S.C.
407051706	STR 40	1	creek	S.C.
407051706	STR 60	1	creek	S.C.
407051706	STR 80	1	creek	S.C.
407051706	OTC 20	0	creek	S.C.
407051706	OTC 40	0	creek	S.C.
407051706	OTC 60	0	creek	S.C.
407051706	OTC 80	0	creek	S.C.
407051706	CTC 20	0	creek	S.C.
407051706	CTC 40	0	creek	S.C.
407051706	CTC 60	0	creek	S.C.
407051706	CTC 80	0	creek	S.C.
501051706	VAN 1	2	creek	S.C.
501051706	VAN 3	2	creek	S.C.
501051706	VAN 5	0	creek	S.C.
501051706	VAN 10	0	creek	S.C.
501051706	ERY 1	2	creek	S.C.
501051706	ERY 3	0	creek	S.C.
501051706	ERY 5	0	creek	S.C.
501051706	ERY 10	0	creek	S.C.
501051706	STR 20	1	creek	S.C.
501051706	STR 40	0	creek	S.C.
501051706	STR 60	0	creek	S.C.
501051706	STR 80	0	creek	S.C.
501051706	OTC 20	0	creek	S.C.
501051706	OTC 40	0	creek	S.C.
501051706	OTC 60	0	creek	S.C.
501051706	OTC 80	0	creek	S.C.
501051706	CTC 20	0	creek	S.C.
501051706	CTC 40	0	creek	S.C.
501051706	CTC 60	0	creek	S.C.
501051706	CTC 80	0	creek	S.C.
502051706	VAN 1	1	creek	S.C.
502051706	VAN 3	0	creek	S.C.
502051706	VAN 5	0	creek	S.C.
502051706	VAN 10	0	creek	S.C.
502051706	ERY 1	0	creek	S.C.
502051706	ERY 3	0	creek	S.C.
502051706	ERY 5	0	creek	S.C.
502051706	ERY 10	0	creek	S.C.
502051706	STR 20	2	creek	S.C.
502051706	STR 40	0	creek	S.C.
502051706	STR 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
502051706	STR 80	0	creek	S.C.
502051706	OTC 20	0	creek	S.C.
502051706	OTC 40	0	creek	S.C.
502051706	OTC 60	0	creek	S.C.
502051706	OTC 80	0	creek	S.C.
502051706	CTC 20	0	creek	S.C.
502051706	CTC 40	0	creek	S.C.
502051706	CTC 60	0	creek	S.C.
502051706	CTC 80	0	creek	S.C.
503051706	VAN 1	0	creek	S.C.
503051706	VAN 3	0	creek	S.C.
503051706	VAN 5	0	creek	S.C.
503051706	VAN 10	0	creek	S.C.
503051706	ERY 1	0	creek	S.C.
503051706	ERY 3	0	creek	S.C.
503051706	ERY 5	0	creek	S.C.
503051706	ERY 10	0	creek	S.C.
503051706	STR 20	2	creek	S.C.
503051706	STR 40	2	creek	S.C.
503051706	STR 60	1	creek	S.C.
503051706	STR 80	0	creek	S.C.
503051706	OTC 20	0	creek	S.C.
503051706	OTC 40	0	creek	S.C.
503051706	OTC 60	0	creek	S.C.
503051706	OTC 80	0	creek	S.C.
503051706	CTC 20	0	creek	S.C.
503051706	CTC 40	0	creek	S.C.
503051706	CTC 60	0	creek	S.C.
503051706	CTC 80	0	creek	S.C.
504051706	VAN 1	2	creek	S.C.
504051706	VAN 3	2	creek	S.C.
504051706	VAN 5	0	creek	S.C.
504051706	VAN 10	0	creek	S.C.
504051706	ERY 1	1	creek	S.C.
504051706	ERY 3	0	creek	S.C.
504051706	ERY 5	0	creek	S.C.
504051706	ERY 10	0	creek	S.C.
504051706	STR 20	1	creek	S.C.
504051706	STR 40	0	creek	S.C.
504051706	STR 60	0	creek	S.C.
504051706	STR 80	0	creek	S.C.
504051706	OTC 20	0	creek	S.C.
504051706	OTC 40	0	creek	S.C.
504051706	OTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
504051706	OTC 80	0	creek	S.C.
504051706	CTC 20	0	creek	S.C.
504051706	CTC 40	0	creek	S.C.
504051706	CTC 60	0	creek	S.C.
504051706	CTC 80	0	creek	S.C.
505051706	VAN 1	0	creek	S.C.
505051706	VAN 3	0	creek	S.C.
505051706	VAN 5	0	creek	S.C.
505051706	VAN 10	0	creek	S.C.
505051706	ERY 1	0	creek	S.C.
505051706	ERY 3	0	creek	S.C.
505051706	ERY 5	0	creek	S.C.
505051706	ERY 10	0	creek	S.C.
505051706	STR 20	2	creek	S.C.
505051706	STR 40	2	creek	S.C.
505051706	STR 60	1	creek	S.C.
505051706	STR 80	0	creek	S.C.
505051706	OTC 20	0	creek	S.C.
505051706	OTC 40	0	creek	S.C.
505051706	OTC 60	0	creek	S.C.
505051706	OTC 80	0	creek	S.C.
505051706	CTC 20	0	creek	S.C.
505051706	CTC 40	0	creek	S.C.
505051706	CTC 60	0	creek	S.C.
505051706	CTC 80	0	creek	S.C.
506051706	VAN 1	1	creek	S.C.
506051706	VAN 3	0	creek	S.C.
506051706	VAN 5	0	creek	S.C.
506051706	VAN 10	0	creek	S.C.
506051706	ERY 1	0	creek	S.C.
506051706	ERY 3	0	creek	S.C.
506051706	ERY 5	0	creek	S.C.
506051706	ERY 10	0	creek	S.C.
506051706	STR 20	2	creek	S.C.
506051706	STR 40	2	creek	S.C.
506051706	STR 60	1	creek	S.C.
506051706	STR 80	0	creek	S.C.
506051706	OTC 20	0	creek	S.C.
506051706	OTC 40	0	creek	S.C.
506051706	OTC 60	0	creek	S.C.
506051706	OTC 80	0	creek	S.C.
506051706	CTC 20	0	creek	S.C.
506051706	CTC 40	0	creek	S.C.
506051706	CTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
506051706	CTC 80	0	creek	S.C.
507051706	VAN 1	0	creek	S.C.
507051706	VAN 3	0	creek	S.C.
507051706	VAN 5	0	creek	S.C.
507051706	VAN 10	0	creek	S.C.
507051706	ERY 1	0	creek	S.C.
507051706	ERY 3	0	creek	S.C.
507051706	ERY 5	0	creek	S.C.
507051706	ERY 10	0	creek	S.C.
507051706	STR 20	2	creek	S.C.
507051706	STR 40	2	creek	S.C.
507051706	STR 60	1	creek	S.C.
507051706	STR 80	1	creek	S.C.
507051706	OTC 20	0	creek	S.C.
507051706	OTC 40	0	creek	S.C.
507051706	OTC 60	0	creek	S.C.
507051706	OTC 80	0	creek	S.C.
507051706	CTC 20	0	creek	S.C.
507051706	CTC 40	0	creek	S.C.
507051706	CTC 60	0	creek	S.C.
507051706	CTC 80	0	creek	S.C.
601051706	VAN 1	2	creek	S.C.
601051706	VAN 3	2	creek	S.C.
601051706	VAN 5	0	creek	S.C.
601051706	VAN 10	0	creek	S.C.
601051706	ERY 1	1	creek	S.C.
601051706	ERY 3	0	creek	S.C.
601051706	ERY 5	0	creek	S.C.
601051706	ERY 10	0	creek	S.C.
601051706	STR 20	2	creek	S.C.
601051706	STR 40	0	creek	S.C.
601051706	STR 60	0	creek	S.C.
601051706	STR 80	0	creek	S.C.
601051706	OTC 20	0	creek	S.C.
601051706	OTC 40	0	creek	S.C.
601051706	OTC 60	0	creek	S.C.
601051706	OTC 80	0	creek	S.C.
601051706	CTC 20	0	creek	S.C.
601051706	CTC 40	0	creek	S.C.
601051706	CTC 60	0	creek	S.C.
601051706	CTC 80	0	creek	S.C.
602051706	VAN 1	2	creek	S.C.
602051706	VAN 3	2	creek	S.C.
602051706	VAN 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
602051706	VAN 10	0	creek	S.C.
602051706	ERY 1	0	creek	S.C.
602051706	ERY 3	0	creek	S.C.
602051706	ERY 5	0	creek	S.C.
602051706	ERY 10	0	creek	S.C.
602051706	STR 20	1	creek	S.C.
602051706	STR 40	0	creek	S.C.
602051706	STR 60	0	creek	S.C.
602051706	STR 80	0	creek	S.C.
602051706	OTC 20	0	creek	S.C.
602051706	OTC 40	0	creek	S.C.
602051706	OTC 60	0	creek	S.C.
602051706	OTC 80	0	creek	S.C.
602051706	CTC 20	0	creek	S.C.
602051706	CTC 40	0	creek	S.C.
602051706	CTC 60	0	creek	S.C.
602051706	CTC 80	0	creek	S.C.
604051706	VAN 1	2	creek	S.C.
604051706	VAN 3	2	creek	S.C.
604051706	VAN 5	0	creek	S.C.
604051706	VAN 10	0	creek	S.C.
604051706	ERY 1	2	creek	S.C.
604051706	ERY 3	1	creek	S.C.
604051706	ERY 5	0	creek	S.C.
604051706	ERY 10	0	creek	S.C.
604051706	STR 20	2	creek	S.C.
604051706	STR 40	0	creek	S.C.
604051706	STR 60	0	creek	S.C.
604051706	STR 80	0	creek	S.C.
604051706	OTC 20	0	creek	S.C.
604051706	OTC 40	0	creek	S.C.
604051706	OTC 60	0	creek	S.C.
604051706	OTC 80	0	creek	S.C.
604051706	CTC 20	0	creek	S.C.
604051706	CTC 40	0	creek	S.C.
604051706	CTC 60	0	creek	S.C.
604051706	CTC 80	0	creek	S.C.
605051706	VAN 1	2	creek	S.C.
605051706	VAN 3	2	creek	S.C.
605051706	VAN 5	0	creek	S.C.
605051706	VAN 10	0	creek	S.C.
605051706	ERY 1	1	creek	S.C.
605051706	ERY 3	0	creek	S.C.
605051706	ERY 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
605051706	ERY 10	0	creek	S.C.
605051706	STR 20	2	creek	S.C.
605051706	STR 40	1	creek	S.C.
605051706	STR 60	0	creek	S.C.
605051706	STR 80	0	creek	S.C.
605051706	OTC 20	0	creek	S.C.
605051706	OTC 40	0	creek	S.C.
605051706	OTC 60	0	creek	S.C.
605051706	OTC 80	0	creek	S.C.
605051706	CTC 20	0	creek	S.C.
605051706	CTC 40	0	creek	S.C.
605051706	CTC 60	0	creek	S.C.
605051706	CTC 80	0	creek	S.C.
606051706	VAN 1	2	creek	S.C.
606051706	VAN 3	2	creek	S.C.
606051706	VAN 5	0	creek	S.C.
606051706	VAN 10	0	creek	S.C.
606051706	ERY 1	1	creek	S.C.
606051706	ERY 3	0	creek	S.C.
606051706	ERY 5	0	creek	S.C.
606051706	ERY 10	0	creek	S.C.
606051706	STR 20	2	creek	S.C.
606051706	STR 40	0	creek	S.C.
606051706	STR 60	0	creek	S.C.
606051706	STR 80	0	creek	S.C.
606051706	OTC 20	0	creek	S.C.
606051706	OTC 40	0	creek	S.C.
606051706	OTC 60	0	creek	S.C.
606051706	OTC 80	0	creek	S.C.
606051706	CTC 20	0	creek	S.C.
606051706	CTC 40	0	creek	S.C.
606051706	CTC 60	0	creek	S.C.
606051706	CTC 80	0	creek	S.C.
607051706	VAN 1	2	creek	S.C.
607051706	VAN 3	2	creek	S.C.
607051706	VAN 5	1	creek	S.C.
607051706	VAN 10	0	creek	S.C.
607051706	ERY 1	0	creek	S.C.
607051706	ERY 3	0	creek	S.C.
607051706	ERY 5	0	creek	S.C.
607051706	ERY 10	0	creek	S.C.
607051706	STR 20	2	creek	S.C.
607051706	STR 40	0	creek	S.C.
607051706	STR 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
607051706	STR 80	0	creek	S.C.
607051706	OTC 20	2	creek	S.C.
607051706	OTC 40	2	creek	S.C.
607051706	OTC 60	2	creek	S.C.
607051706	OTC 80	1	creek	S.C.
607051706	CTC 20	2	creek	S.C.
607051706	CTC 40	1	creek	S.C.
607051706	CTC 60	1	creek	S.C.
607051706	CTC 80	0	creek	S.C.
701051706	VAN 1	2	creek	S.C.
701051706	VAN 3	0	creek	S.C.
701051706	VAN 5	0	creek	S.C.
701051706	VAN 10	0	creek	S.C.
701051706	ERY 1	0	creek	S.C.
701051706	ERY 3	0	creek	S.C.
701051706	ERY 5	0	creek	S.C.
701051706	ERY 10	0	creek	S.C.
701051706	STR 20	2	creek	S.C.
701051706	STR 40	2	creek	S.C.
701051706	STR 60	1	creek	S.C.
701051706	STR 80	1	creek	S.C.
701051706	OTC 20	2	creek	S.C.
701051706	OTC 40	2	creek	S.C.
701051706	OTC 60	2	creek	S.C.
701051706	OTC 80	2	creek	S.C.
701051706	CTC 20	2	creek	S.C.
701051706	CTC 40	2	creek	S.C.
701051706	CTC 60	2	creek	S.C.
701051706	CTC 80	1	creek	S.C.
702051706	VAN 1	2	creek	S.C.
702051706	VAN 3	1	creek	S.C.
702051706	VAN 5	0	creek	S.C.
702051706	VAN 10	0	creek	S.C.
702051706	ERY 1	0	creek	S.C.
702051706	ERY 3	0	creek	S.C.
702051706	ERY 5	0	creek	S.C.
702051706	ERY 10	0	creek	S.C.
702051706	STR 20	0	creek	S.C.
702051706	STR 40	0	creek	S.C.
702051706	STR 60	0	creek	S.C.
702051706	STR 80	0	creek	S.C.
702051706	OTC 20	0	creek	S.C.
702051706	OTC 40	0	creek	S.C.
702051706	OTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
702051706	OTC 80	0	creek	S.C.
702051706	CTC 20	0	creek	S.C.
702051706	CTC 40	0	creek	S.C.
702051706	CTC 60	0	creek	S.C.
702051706	CTC 80	0	creek	S.C.
703051706	VAN 1	2	creek	S.C.
703051706	VAN 3	2	creek	S.C.
703051706	VAN 5	0	creek	S.C.
703051706	VAN 10	0	creek	S.C.
703051706	ERY 1	1	creek	S.C.
703051706	ERY 3	1	creek	S.C.
703051706	ERY 5	0	creek	S.C.
703051706	ERY 10	0	creek	S.C.
703051706	STR 20	0	creek	S.C.
703051706	STR 40	0	creek	S.C.
703051706	STR 60	0	creek	S.C.
703051706	STR 80	0	creek	S.C.
703051706	OTC 20	0	creek	S.C.
703051706	OTC 40	0	creek	S.C.
703051706	OTC 60	0	creek	S.C.
703051706	OTC 80	0	creek	S.C.
703051706	CTC 20	0	creek	S.C.
703051706	CTC 40	0	creek	S.C.
703051706	CTC 60	0	creek	S.C.
703051706	CTC 80	0	creek	S.C.
704051706	VAN 1	2	creek	S.C.
704051706	VAN 3	2	creek	S.C.
704051706	VAN 5	0	creek	S.C.
704051706	VAN 10	0	creek	S.C.
704051706	ERY 1	2	creek	S.C.
704051706	ERY 3	1	creek	S.C.
704051706	ERY 5	0	creek	S.C.
704051706	ERY 10	0	creek	S.C.
704051706	STR 20	2	creek	S.C.
704051706	STR 40	0	creek	S.C.
704051706	STR 60	0	creek	S.C.
704051706	STR 80	0	creek	S.C.
704051706	OTC 20	0	creek	S.C.
704051706	OTC 40	0	creek	S.C.
704051706	OTC 60	0	creek	S.C.
704051706	OTC 80	0	creek	S.C.
704051706	CTC 20	0	creek	S.C.
704051706	CTC 40	0	creek	S.C.
704051706	CTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
704051706	CTC 80	0	creek	S.C.
801051706	VAN 1	2	creek	S.C.
801051706	VAN 3	2	creek	S.C.
801051706	VAN 5	0	creek	S.C.
801051706	VAN 10	0	creek	S.C.
801051706	ERY 1	2	creek	S.C.
801051706	ERY 3	0	creek	S.C.
801051706	ERY 5	0	creek	S.C.
801051706	ERY 10	0	creek	S.C.
801051706	STR 20	1	creek	S.C.
801051706	STR 40	0	creek	S.C.
801051706	STR 60	0	creek	S.C.
801051706	STR 80	0	creek	S.C.
801051706	OTC 20	0	creek	S.C.
801051706	OTC 40	0	creek	S.C.
801051706	OTC 60	0	creek	S.C.
801051706	OTC 80	0	creek	S.C.
801051706	CTC 20	0	creek	S.C.
801051706	CTC 40	0	creek	S.C.
801051706	CTC 60	0	creek	S.C.
801051706	CTC 80	0	creek	S.C.
802051706	VAN 1	2	creek	S.C.
802051706	VAN 3	2	creek	S.C.
802051706	VAN 5	0	creek	S.C.
802051706	VAN 10	0	creek	S.C.
802051706	ERY 1	0	creek	S.C.
802051706	ERY 3	0	creek	S.C.
802051706	ERY 5	0	creek	S.C.
802051706	ERY 10	0	creek	S.C.
802051706	STR 20	1	creek	S.C.
802051706	STR 40	0	creek	S.C.
802051706	STR 60	0	creek	S.C.
802051706	STR 80	0	creek	S.C.
802051706	OTC 20	0	creek	S.C.
802051706	OTC 40	0	creek	S.C.
802051706	OTC 60	0	creek	S.C.
802051706	OTC 80	0	creek	S.C.
802051706	CTC 20	0	creek	S.C.
802051706	CTC 40	0	creek	S.C.
802051706	CTC 60	0	creek	S.C.
802051706	CTC 80	0	creek	S.C.
801051706	VAN 1	2	creek	S.C.
801051706	VAN 3	2	creek	S.C.
801051706	VAN 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
801051706	VAN 10	0	creek	S.C.
801051706	ERY 1	1	creek	S.C.
801051706	ERY 3	0	creek	S.C.
801051706	ERY 5	0	creek	S.C.
801051706	ERY 10	0	creek	S.C.
801051706	STR 20	1	creek	S.C.
801051706	STR 40	0	creek	S.C.
801051706	STR 60	0	creek	S.C.
801051706	STR 80	0	creek	S.C.
801051706	OTC 20	0	creek	S.C.
801051706	OTC 40	0	creek	S.C.
801051706	OTC 60	0	creek	S.C.
801051706	OTC 80	0	creek	S.C.
801051706	CTC 20	0	creek	S.C.
801051706	CTC 40	0	creek	S.C.
801051706	CTC 60	0	creek	S.C.
801051706	CTC 80	0	creek	S.C.

Table 17 Data from ARA Plate Number 5. The isolate column contains the identification number for each isolate processed. 101032706 means that isolate came from sample 1 and was the first isolate. The final 6 numbers are the date that sample was collected (i.e., March 27, 2006 = 032706). The antibiotic column contains the antibiotic and concentration used, in μg/ml. Vancomycin was represented by VAN, erythromycin was ERY, streptomycin was STR, oxytetracycline hydrochloride was OTC, and chlortetracycline hydrochloride was CTC. The growth of each isolate was scored as a 0, 1, or 2 in the score column. This was later converted to binary code, using only 0 or 1 (scores of 2 would become 1). The source column displays the origin of the samples. The location column indicated where the samples were from. Horse and cow samples were from S.C. (Sinking Creek). Cat and dog samples were collected from other laboratory personnel with pets. WWTP sample locations were recorded based on what treatment plant they came from.

Isolate	Antibiotic	Score	Source	Location
804051706	VAN 1	2	creek	S.C.
804051706	VAN 3	1	creek	S.C.
804051706	VAN 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
804051706	VAN 10	0	creek	S.C.
804051706	ERY 1	0	creek	S.C.
804051706	ERY 3	0	creek	S.C.
804051706	ERY 5	0	creek	S.C.
804051706	ERY 10	0	creek	S.C.
804051706	STR 20	2	creek	S.C.
804051706	STR 40	1	creek	S.C.
804051706	STR 60	0	creek	S.C.
804051706	STR 80	0	creek	S.C.
804051706	OTC 20	2	creek	S.C.
804051706	OTC 40	2	creek	S.C.
804051706	OTC 60	2	creek	S.C.
804051706	OTC 80	2	creek	S.C.
804051706	CTC 20	2	creek	S.C.
804051706	CTC 40	2	creek	S.C.
804051706	CTC 60	2	creek	S.C.
804051706	CTC 80	2	creek	S.C.
805051706	VAN 1	2	creek	S.C.
805051706	VAN 3	1	creek	S.C.
805051706	VAN 5	0	creek	S.C.
805051706	VAN 10	0	creek	S.C.
805051706	ERY 1	0	creek	S.C.
805051706	ERY 3	0	creek	S.C.
805051706	ERY 5	0	creek	S.C.
805051706	ERY 10	0	creek	S.C.
805051706	STR 20	0	creek	S.C.
805051706	STR 40	0	creek	S.C.
805051706	STR 60	0	creek	S.C.
805051706	STR 80	0	creek	S.C.
805051706	OTC 20	0	creek	S.C.
805051706	OTC 40	0	creek	S.C.
805051706	OTC 60	0	creek	S.C.
805051706	OTC 80	0	creek	S.C.
805051706	CTC 20	0	creek	S.C.
805051706	CTC 40	0	creek	S.C.
805051706	CTC 60	0	creek	S.C.
805051706	CTC 80	0	creek	S.C.
806051706	VAN 1	2	creek	S.C.
806051706	VAN 3	2	creek	S.C.
806051706	VAN 5	0	creek	S.C.
806051706	VAN 10	0	creek	S.C.
806051706	ERY 1	0	creek	S.C.
806051706	ERY 3	0	creek	S.C.
806051706	ERY 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
806051706	ERY 10	0	creek	S.C.
806051706	STR 20	0	creek	S.C.
806051706	STR 40	0	creek	S.C.
806051706	STR 60	0	creek	S.C.
806051706	STR 80	0	creek	S.C.
806051706	OTC 20	0	creek	S.C.
806051706	OTC 40	0	creek	S.C.
806051706	OTC 60	0	creek	S.C.
806051706	OTC 80	0	creek	S.C.
806051706	CTC 20	1	creek	S.C.
806051706	CTC 40	0	creek	S.C.
806051706	CTC 60	0	creek	S.C.
806051706	CTC 80	0	creek	S.C.
807051706	VAN 1	2	creek	S.C.
807051706	VAN 3	2	creek	S.C.
807051706	VAN 5	0	creek	S.C.
807051706	VAN 10	0	creek	S.C.
807051706	ERY 1	1	creek	S.C.
807051706	ERY 3	0	creek	S.C.
807051706	ERY 5	0	creek	S.C.
807051706	ERY 10	0	creek	S.C.
807051706	STR 20	1	creek	S.C.
807051706	STR 40	0	creek	S.C.
807051706	STR 60	0	creek	S.C.
807051706	STR 80	0	creek	S.C.
807051706	OTC 20	1	creek	S.C.
807051706	OTC 40	0	creek	S.C.
807051706	OTC 60	0	creek	S.C.
807051706	OTC 80	0	creek	S.C.
807051706	CTC 20	1	creek	S.C.
807051706	CTC 40	0	creek	S.C.
807051706	CTC 60	0	creek	S.C.
807051706	CTC 80	0	creek	S.C.
903051706	VAN 1	0	creek	S.C.
903051706	VAN 3	0	creek	S.C.
903051706	VAN 5	0	creek	S.C.
903051706	VAN 10	0	creek	S.C.
903051706	ERY 1	0	creek	S.C.
903051706	ERY 3	0	creek	S.C.
903051706	ERY 5	0	creek	S.C.
903051706	ERY 10	0	creek	S.C.
903051706	STR 20	0	creek	S.C.
903051706	STR 40	0	creek	S.C.
903051706	STR 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
903051706	STR 80	0	creek	S.C.
903051706	OTC 20	0	creek	S.C.
903051706	OTC 40	0	creek	S.C.
903051706	OTC 60	0	creek	S.C.
903051706	OTC 80	0	creek	S.C.
903051706	CTC 20	1	creek	S.C.
903051706	CTC 40	0	creek	S.C.
903051706	CTC 60	0	creek	S.C.
903051706	CTC 80	0	creek	S.C.
904051706	VAN 1	2	creek	S.C.
904051706	VAN 3	0	creek	S.C.
904051706	VAN 5	0	creek	S.C.
904051706	VAN 10	0	creek	S.C.
904051706	ERY 1	1	creek	S.C.
904051706	ERY 3	0	creek	S.C.
904051706	ERY 5	0	creek	S.C.
904051706	ERY 10	0	creek	S.C.
904051706	STR 20	1	creek	S.C.
904051706	STR 40	0	creek	S.C.
904051706	STR 60	0	creek	S.C.
904051706	STR 80	0	creek	S.C.
904051706	OTC 20	2	creek	S.C.
904051706	OTC 40	2	creek	S.C.
904051706	OTC 60	2	creek	S.C.
904051706	OTC 80	2	creek	S.C.
904051706	CTC 20	2	creek	S.C.
904051706	CTC 40	2	creek	S.C.
904051706	CTC 60	2	creek	S.C.
904051706	CTC 80	2	creek	S.C.
906051706	VAN 1	0	creek	S.C.
906051706	VAN 3	0	creek	S.C.
906051706	VAN 5	0	creek	S.C.
906051706	VAN 10	0	creek	S.C.
906051706	ERY 1	0	creek	S.C.
906051706	ERY 3	0	creek	S.C.
906051706	ERY 5	0	creek	S.C.
906051706	ERY 10	0	creek	S.C.
906051706	STR 20	2	creek	S.C.
906051706	STR 40	0	creek	S.C.
906051706	STR 60	0	creek	S.C.
906051706	STR 80	0	creek	S.C.
906051706	OTC 20	0	creek	S.C.
906051706	OTC 40	0	creek	S.C.
906051706	OTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
906051706	OTC 80	0	creek	S.C.
906051706	CTC 20	1	creek	S.C.
906051706	CTC 40	0	creek	S.C.
906051706	CTC 60	0	creek	S.C.
906051706	CTC 80	0	creek	S.C.
907051706	VAN 1	0	creek	S.C.
907051706	VAN 3	0	creek	S.C.
907051706	VAN 5	0	creek	S.C.
907051706	VAN 10	0	creek	S.C.
907051706	ERY 1	0	creek	S.C.
907051706	ERY 3	0	creek	S.C.
907051706	ERY 5	0	creek	S.C.
907051706	ERY 10	0	creek	S.C.
907051706	STR 20	1	creek	S.C.
907051706	STR 40	0	creek	S.C.
907051706	STR 60	0	creek	S.C.
907051706	STR 80	0	creek	S.C.
907051706	OTC 20	2	creek	S.C.
907051706	OTC 40	2	creek	S.C.
907051706	OTC 60	2	creek	S.C.
907051706	OTC 80	2	creek	S.C.
907051706	CTC 20	2	creek	S.C.
907051706	CTC 40	2	creek	S.C.
907051706	CTC 60	2	creek	S.C.
907051706	CTC 80	2	creek	S.C.
1001051706	VAN 1	2	creek	S.C.
1001051706	VAN 3	0	creek	S.C.
1001051706	VAN 5	0	creek	S.C.
1001051706	VAN 10	0	creek	S.C.
1001051706	ERY 1	1	creek	S.C.
1001051706	ERY 3	0	creek	S.C.
1001051706	ERY 5	0	creek	S.C.
1001051706	ERY 10	0	creek	S.C.
1001051706	STR 20	0	creek	S.C.
1001051706	STR 40	0	creek	S.C.
1001051706	STR 60	0	creek	S.C.
1001051706	STR 80	0	creek	S.C.
1001051706	OTC 20	0	creek	S.C.
1001051706	OTC 40	0	creek	S.C.
1001051706	OTC 60	0	creek	S.C.
1001051706	OTC 80	0	creek	S.C.
1001051706	CTC 20	1	creek	S.C.
1001051706	CTC 40	0	creek	S.C.
1001051706	CTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1001051706	CTC 80	0	creek	S.C.
1002051706	VAN 1	0	creek	S.C.
1002051706	VAN 3	0	creek	S.C.
1002051706	VAN 5	0	creek	S.C.
1002051706	VAN 10	0	creek	S.C.
1002051706	ERY 1	0	creek	S.C.
1002051706	ERY 3	0	creek	S.C.
1002051706	ERY 5	0	creek	S.C.
1002051706	ERY 10	0	creek	S.C.
1002051706	STR 20	0	creek	S.C.
1002051706	STR 40	0	creek	S.C.
1002051706	STR 60	0	creek	S.C.
1002051706	STR 80	0	creek	S.C.
1002051706	OTC 20	0	creek	S.C.
1002051706	OTC 40	0	creek	S.C.
1002051706	OTC 60	0	creek	S.C.
1002051706	OTC 80	0	creek	S.C.
1002051706	CTC 20	0	creek	S.C.
1002051706	CTC 40	0	creek	S.C.
1002051706	CTC 60	0	creek	S.C.
1002051706	CTC 80	0	creek	S.C.
1003051706	VAN 1	2	creek	S.C.
1003051706	VAN 3	2	creek	S.C.
1003051706	VAN 5	0	creek	S.C.
1003051706	VAN 10	0	creek	S.C.
1003051706	ERY 1	2	creek	S.C.
1003051706	ERY 3	1	creek	S.C.
1003051706	ERY 5	0	creek	S.C.
1003051706	ERY 10	0	creek	S.C.
1003051706	STR 20	0	creek	S.C.
1003051706	STR 40	0	creek	S.C.
1003051706	STR 60	0	creek	S.C.
1003051706	STR 80	0	creek	S.C.
1003051706	OTC 20	0	creek	S.C.
1003051706	OTC 40	0	creek	S.C.
1003051706	OTC 60	0	creek	S.C.
1003051706	OTC 80	0	creek	S.C.
1003051706	CTC 20	1	creek	S.C.
1003051706	CTC 40	0	creek	S.C.
1003051706	CTC 60	0	creek	S.C.
1003051706	CTC 80	0	creek	S.C.
1004051706	VAN 1	2	creek	S.C.
1004051706	VAN 3	2	creek	S.C.
1004051706	VAN 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1004051706	VAN 10	0	creek	S.C.
1004051706	ERY 1	2	creek	S.C.
1004051706	ERY 3	1	creek	S.C.
1004051706	ERY 5	0	creek	S.C.
1004051706	ERY 10	0	creek	S.C.
1004051706	STR 20	0	creek	S.C.
1004051706	STR 40	0	creek	S.C.
1004051706	STR 60	0	creek	S.C.
1004051706	STR 80	0	creek	S.C.
1004051706	OTC 20	0	creek	S.C.
1004051706	OTC 40	0	creek	S.C.
1004051706	OTC 60	0	creek	S.C.
1004051706	OTC 80	0	creek	S.C.
1004051706	CTC 20	1	creek	S.C.
1004051706	CTC 40	0	creek	S.C.
1004051706	CTC 60	0	creek	S.C.
1004051706	CTC 80	0	creek	S.C.
1005051706	VAN 1	1	creek	S.C.
1005051706	VAN 3	0	creek	S.C.
1005051706	VAN 5	0	creek	S.C.
1005051706	VAN 10	0	creek	S.C.
1005051706	ERY 1	0	creek	S.C.
1005051706	ERY 3	0	creek	S.C.
1005051706	ERY 5	0	creek	S.C.
1005051706	ERY 10	0	creek	S.C.
1005051706	STR 20	2	creek	S.C.
1005051706	STR 40	2	creek	S.C.
1005051706	STR 60	1	creek	S.C.
1005051706	STR 80	0	creek	S.C.
1005051706	OTC 20	0	creek	S.C.
1005051706	OTC 40	0	creek	S.C.
1005051706	OTC 60	0	creek	S.C.
1005051706	OTC 80	0	creek	S.C.
1005051706	CTC 20	1	creek	S.C.
1005051706	CTC 40	0	creek	S.C.
1005051706	CTC 60	0	creek	S.C.
1005051706	CTC 80	0	creek	S.C.
1006051706	VAN 1	2	creek	S.C.
1006051706	VAN 3	2	creek	S.C.
1006051706	VAN 5	2	creek	S.C.
1006051706	VAN 10	0	creek	S.C.
1006051706	ERY 1	2	creek	S.C.
1006051706	ERY 3	2	creek	S.C.
1006051706	ERY 5	1	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1006051706	ERY 10	0	creek	S.C.
1006051706	STR 20	0	creek	S.C.
1006051706	STR 40	0	creek	S.C.
1006051706	STR 60	0	creek	S.C.
1006051706	STR 80	0	creek	S.C.
1006051706	OTC 20	0	creek	S.C.
1006051706	OTC 40	0	creek	S.C.
1006051706	OTC 60	0	creek	S.C.
1006051706	OTC 80	0	creek	S.C.
1006051706	CTC 20	1	creek	S.C.
1006051706	CTC 40	0	creek	S.C.
1006051706	CTC 60	0	creek	S.C.
1006051706	CTC 80	0	creek	S.C.
1201051706	VAN 1	2	creek	S.C.
1201051706	VAN 3	2	creek	S.C.
1201051706	VAN 5	0	creek	S.C.
1201051706	VAN 10	0	creek	S.C.
1201051706	ERY 1	1	creek	S.C.
1201051706	ERY 3	0	creek	S.C.
1201051706	ERY 5	0	creek	S.C.
1201051706	ERY 10	0	creek	S.C.
1201051706	STR 20	0	creek	S.C.
1201051706	STR 40	0	creek	S.C.
1201051706	STR 60	0	creek	S.C.
1201051706	STR 80	0	creek	S.C.
1201051706	OTC 20	0	creek	S.C.
1201051706	OTC 40	0	creek	S.C.
1201051706	OTC 60	0	creek	S.C.
1201051706	OTC 80	0	creek	S.C.
1201051706	CTC 20	1	creek	S.C.
1201051706	CTC 40	0	creek	S.C.
1201051706	CTC 60	0	creek	S.C.
1201051706	CTC 80	0	creek	S.C.
1202051706	VAN 1	2	creek	S.C.
1202051706	VAN 3	2	creek	S.C.
1202051706	VAN 5	0	creek	S.C.
1202051706	VAN 10	0	creek	S.C.
1202051706	ERY 1	1	creek	S.C.
1202051706	ERY 3	0	creek	S.C.
1202051706	ERY 5	0	creek	S.C.
1202051706	ERY 10	0	creek	S.C.
1202051706	STR 20	0	creek	S.C.
1202051706	STR 40	0	creek	S.C.
1202051706	STR 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1202051706	STR 80	0	creek	S.C.
1202051706	OTC 20	0	creek	S.C.
1202051706	OTC 40	0	creek	S.C.
1202051706	OTC 60	0	creek	S.C.
1202051706	OTC 80	0	creek	S.C.
1202051706	CTC 20	1	creek	S.C.
1202051706	CTC 40	0	creek	S.C.
1202051706	CTC 60	0	creek	S.C.
1202051706	CTC 80	0	creek	S.C.
1204051706	VAN 1	2	creek	S.C.
1204051706	VAN 3	0	creek	S.C.
1204051706	VAN 5	0	creek	S.C.
1204051706	VAN 10	0	creek	S.C.
1204051706	ERY 1	0	creek	S.C.
1204051706	ERY 3	0	creek	S.C.
1204051706	ERY 5	0	creek	S.C.
1204051706	ERY 10	0	creek	S.C.
1204051706	STR 20	1	creek	S.C.
1204051706	STR 40	0	creek	S.C.
1204051706	STR 60	0	creek	S.C.
1204051706	STR 80	0	creek	S.C.
1204051706	OTC 20	0	creek	S.C.
1204051706	OTC 40	0	creek	S.C.
1204051706	OTC 60	0	creek	S.C.
1204051706	OTC 80	0	creek	S.C.
1204051706	CTC 20	1	creek	S.C.
1204051706	CTC 40	0	creek	S.C.
1204051706	CTC 60	0	creek	S.C.
1204051706	CTC 80	0	creek	S.C.
1205051706	VAN 1	2	creek	S.C.
1205051706	VAN 3	2	creek	S.C.
1205051706	VAN 5	0	creek	S.C.
1205051706	VAN 10	0	creek	S.C.
1205051706	ERY 1	0	creek	S.C.
1205051706	ERY 3	0	creek	S.C.
1205051706	ERY 5	0	creek	S.C.
1205051706	ERY 10	0	creek	S.C.
1205051706	STR 20	0	creek	S.C.
1205051706	STR 40	0	creek	S.C.
1205051706	STR 60	0	creek	S.C.
1205051706	STR 80	0	creek	S.C.
1205051706	OTC 20	0	creek	S.C.
1205051706	OTC 40	0	creek	S.C.
1205051706	OTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1205051706	OTC 80	0	creek	S.C.
1205051706	CTC 20	1	creek	S.C.
1205051706	CTC 40	0	creek	S.C.
1205051706	CTC 60	0	creek	S.C.
1205051706	CTC 80	0	creek	S.C.
1207051706	VAN 1	2	creek	S.C.
1207051706	VAN 3	0	creek	S.C.
1207051706	VAN 5	0	creek	S.C.
1207051706	VAN 10	0	creek	S.C.
1207051706	ERY 1	0	creek	S.C.
1207051706	ERY 3	0	creek	S.C.
1207051706	ERY 5	0	creek	S.C.
1207051706	ERY 10	0	creek	S.C.
1207051706	STR 20	1	creek	S.C.
1207051706	STR 40	0	creek	S.C.
1207051706	STR 60	0	creek	S.C.
1207051706	STR 80	0	creek	S.C.
1207051706	OTC 20	0	creek	S.C.
1207051706	OTC 40	0	creek	S.C.
1207051706	OTC 60	0	creek	S.C.
1207051706	OTC 80	0	creek	S.C.
1207051706	CTC 20	1	creek	S.C.
1207051706	CTC 40	0	creek	S.C.
1207051706	CTC 60	0	creek	S.C.
1207051706	CTC 80	0	creek	S.C.
1208051706	VAN 1	1	creek	S.C.
1208051706	VAN 3	0	creek	S.C.
1208051706	VAN 5	0	creek	S.C.
1208051706	VAN 10	0	creek	S.C.
1208051706	ERY 1	1	creek	S.C.
1208051706	ERY 3	0	creek	S.C.
1208051706	ERY 5	0	creek	S.C.
1208051706	ERY 10	0	creek	S.C.
1208051706	STR 20	1	creek	S.C.
1208051706	STR 40	1	creek	S.C.
1208051706	STR 60	0	creek	S.C.
1208051706	STR 80	0	creek	S.C.
1208051706	OTC 20	0	creek	S.C.
1208051706	OTC 40	0	creek	S.C.
1208051706	OTC 60	0	creek	S.C.
1208051706	OTC 80	0	creek	S.C.
1208051706	CTC 20	1	creek	S.C.
1208051706	CTC 40	0	creek	S.C.
1208051706	CTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1208051706	CTC 80	0	creek	S.C.
1209051706	VAN 1	2	creek	S.C.
1209051706	VAN 3	2	creek	S.C.
1209051706	VAN 5	0	creek	S.C.
1209051706	VAN 10	0	creek	S.C.
1209051706	ERY 1	2	creek	S.C.
1209051706	ERY 3	0	creek	S.C.
1209051706	ERY 5	0	creek	S.C.
1209051706	ERY 10	0	creek	S.C.
1209051706	STR 20	0	creek	S.C.
1209051706	STR 40	0	creek	S.C.
1209051706	STR 60	0	creek	S.C.
1209051706	STR 80	0	creek	S.C.
1209051706	OTC 20	0	creek	S.C.
1209051706	OTC 40	0	creek	S.C.
1209051706	OTC 60	0	creek	S.C.
1209051706	OTC 80	0	creek	S.C.
1209051706	CTC 20	1	creek	S.C.
1209051706	CTC 40	0	creek	S.C.
1209051706	CTC 60	0	creek	S.C.
1209051706	CTC 80	0	creek	S.C.
1303051706	VAN 1	1	creek	S.C.
1303051706	VAN 3	0	creek	S.C.
1303051706	VAN 5	0	creek	S.C.
1303051706	VAN 10	0	creek	S.C.
1303051706	ERY 1	0	creek	S.C.
1303051706	ERY 3	0	creek	S.C.
1303051706	ERY 5	0	creek	S.C.
1303051706	ERY 10	0	creek	S.C.
1303051706	STR 20	1	creek	S.C.
1303051706	STR 40	1	creek	S.C.
1303051706	STR 60	0	creek	S.C.
1303051706	STR 80	0	creek	S.C.
1303051706	OTC 20	0	creek	S.C.
1303051706	OTC 40	0	creek	S.C.
1303051706	OTC 60	0	creek	S.C.
1303051706	OTC 80	0	creek	S.C.
1303051706	CTC 20	1	creek	S.C.
1303051706	CTC 40	0	creek	S.C.
1303051706	CTC 60	0	creek	S.C.
1303051706	CTC 80	0	creek	S.C.
1305051706	VAN 1	0	creek	S.C.
1305051706	VAN 3	0	creek	S.C.
1305051706	VAN 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1305051706	VAN 10	0	creek	S.C.
1305051706	ERY 1	0	creek	S.C.
1305051706	ERY 3	0	creek	S.C.
1305051706	ERY 5	0	creek	S.C.
1305051706	ERY 10	0	creek	S.C.
1305051706	STR 20	1	creek	S.C.
1305051706	STR 40	1	creek	S.C.
1305051706	STR 60	0	creek	S.C.
1305051706	STR 80	0	creek	S.C.
1305051706	OTC 20	0	creek	S.C.
1305051706	OTC 40	0	creek	S.C.
1305051706	OTC 60	0	creek	S.C.
1305051706	OTC 80	0	creek	S.C.
1305051706	CTC 20	1	creek	S.C.
1305051706	CTC 40	0	creek	S.C.
1305051706	CTC 60	0	creek	S.C.
1305051706	CTC 80	0	creek	S.C.
1306051706	VAN 1	0	creek	S.C.
1306051706	VAN 3	0	creek	S.C.
1306051706	VAN 5	0	creek	S.C.
1306051706	VAN 10	0	creek	S.C.
1306051706	ERY 1	0	creek	S.C.
1306051706	ERY 3	0	creek	S.C.
1306051706	ERY 5	0	creek	S.C.
1306051706	ERY 10	0	creek	S.C.
1306051706	STR 20	1	creek	S.C.
1306051706	STR 40	1	creek	S.C.
1306051706	STR 60	0	creek	S.C.
1306051706	STR 80	0	creek	S.C.
1306051706	OTC 20	0	creek	S.C.
1306051706	OTC 40	0	creek	S.C.
1306051706	OTC 60	0	creek	S.C.
1306051706	OTC 80	0	creek	S.C.
1306051706	CTC 20	1	creek	S.C.
1306051706	CTC 40	0	creek	S.C.
1306051706	CTC 60	0	creek	S.C.
1306051706	CTC 80	0	creek	S.C.
1307051706	VAN 1	1	creek	S.C.
1307051706	VAN 3	0	creek	S.C.
1307051706	VAN 5	0	creek	S.C.
1307051706	VAN 10	0	creek	S.C.
1307051706	ERY 1	0	creek	S.C.
1307051706	ERY 3	0	creek	S.C.
1307051706	ERY 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1307051706	ERY 10	0	creek	S.C.
1307051706	STR 20	1	creek	S.C.
1307051706	STR 40	1	creek	S.C.
1307051706	STR 60	0	creek	S.C.
1307051706	STR 80	0	creek	S.C.
1307051706	OTC 20	0	creek	S.C.
1307051706	OTC 40	0	creek	S.C.
1307051706	OTC 60	0	creek	S.C.
1307051706	OTC 80	0	creek	S.C.
1307051706	CTC 20	1	creek	S.C.
1307051706	CTC 40	0	creek	S.C.
1307051706	CTC 60	0	creek	S.C.
1307051706	CTC 80	0	creek	S.C.
1308051706	VAN 1	0	creek	S.C.
1308051706	VAN 3	0	creek	S.C.
1308051706	VAN 5	0	creek	S.C.
1308051706	VAN 10	0	creek	S.C.
1308051706	ERY 1	0	creek	S.C.
1308051706	ERY 3	0	creek	S.C.
1308051706	ERY 5	0	creek	S.C.
1308051706	ERY 10	0	creek	S.C.
1308051706	STR 20	1	creek	S.C.
1308051706	STR 40	0	creek	S.C.
1308051706	STR 60	0	creek	S.C.
1308051706	STR 80	0	creek	S.C.
1308051706	OTC 20	0	creek	S.C.
1308051706	OTC 40	0	creek	S.C.
1308051706	OTC 60	0	creek	S.C.
1308051706	OTC 80	0	creek	S.C.
1308051706	CTC 20	1	creek	S.C.
1308051706	CTC 40	0	creek	S.C.
1308051706	CTC 60	0	creek	S.C.
1308051706	CTC 80	0	creek	S.C.
110051706	VAN 1	0	creek	S.C.
110051706	VAN 3	0	creek	S.C.
110051706	VAN 5	0	creek	S.C.
110051706	VAN 10	0	creek	S.C.
110051706	ERY 1	0	creek	S.C.
110051706	ERY 3	0	creek	S.C.
110051706	ERY 5	0	creek	S.C.
110051706	ERY 10	0	creek	S.C.
110051706	STR 20	1	creek	S.C.
110051706	STR 40	0	creek	S.C.
110051706	STR 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
110051706	STR 80	0	creek	S.C.
110051706	OTC 20	2	creek	S.C.
110051706	OTC 40	2	creek	S.C.
110051706	OTC 60	1	creek	S.C.
110051706	OTC 80	1	creek	S.C.
110051706	CTC 20	2	creek	S.C.
110051706	CTC 40	2	creek	S.C.
110051706	CTC 60	2	creek	S.C.
110051706	CTC 80	2	creek	S.C.
101081606	VAN 1	1	creek	S.C.
101081606	VAN 3	0	creek	S.C.
101081606	VAN 5	0	creek	S.C.
101081606	VAN 10	0	creek	S.C.
101081606	ERY 1	0	creek	S.C.
101081606	ERY 3	0	creek	S.C.
101081606	ERY 5	0	creek	S.C.
101081606	ERY 10	0	creek	S.C.
101081606	STR 20	2	creek	S.C.
101081606	STR 40	1	creek	S.C.
101081606	STR 60	1	creek	S.C.
101081606	STR 80	1	creek	S.C.
101081606	OTC 20	0	creek	S.C.
101081606	OTC 40	0	creek	S.C.
101081606	OTC 60	0	creek	S.C.
101081606	OTC 80	0	creek	S.C.
101081606	CTC 20	1	creek	S.C.
101081606	CTC 40	0	creek	S.C.
101081606	CTC 60	0	creek	S.C.
101081606	CTC 80	0	creek	S.C.
201081606	VAN 1	2	creek	S.C.
201081606	VAN 3	2	creek	S.C.
201081606	VAN 5	0	creek	S.C.
201081606	VAN 10	0	creek	S.C.
201081606	ERY 1	1	creek	S.C.
201081606	ERY 3	0	creek	S.C.
201081606	ERY 5	0	creek	S.C.
201081606	ERY 10	0	creek	S.C.
201081606	STR 20	0	creek	S.C.
201081606	STR 40	0	creek	S.C.
201081606	STR 60	0	creek	S.C.
201081606	STR 80	0	creek	S.C.
201081606	OTC 20	0	creek	S.C.
201081606	OTC 40	0	creek	S.C.
201081606	OTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
201081606	OTC 80	0	creek	S.C.
201081606	CTC 20	1	creek	S.C.
201081606	CTC 40	0	creek	S.C.
201081606	CTC 60	0	creek	S.C.
201081606	CTC 80	0	creek	S.C.
202081606	VAN 1	2	creek	S.C.
202081606	VAN 3	2	creek	S.C.
202081606	VAN 5	0	creek	S.C.
202081606	VAN 10	0	creek	S.C.
202081606	ERY 1	1	creek	S.C.
202081606	ERY 3	0	creek	S.C.
202081606	ERY 5	0	creek	S.C.
202081606	ERY 10	0	creek	S.C.
202081606	STR 20	1	creek	S.C.
202081606	STR 40	0	creek	S.C.
202081606	STR 60	0	creek	S.C.
202081606	STR 80	0	creek	S.C.
202081606	OTC 20	0	creek	S.C.
202081606	OTC 40	0	creek	S.C.
202081606	OTC 60	0	creek	S.C.
202081606	OTC 80	0	creek	S.C.
202081606	CTC 20	1	creek	S.C.
202081606	CTC 40	0	creek	S.C.
202081606	CTC 60	0	creek	S.C.
202081606	CTC 80	0	creek	S.C.
301081606	VAN 1	1	creek	S.C.
301081606	VAN 3	0	creek	S.C.
301081606	VAN 5	0	creek	S.C.
301081606	VAN 10	0	creek	S.C.
301081606	ERY 1	0	creek	S.C.
301081606	ERY 3	0	creek	S.C.
301081606	ERY 5	0	creek	S.C.
301081606	ERY 10	0	creek	S.C.
301081606	STR 20	1	creek	S.C.
301081606	STR 40	1	creek	S.C.
301081606	STR 60	1	creek	S.C.
301081606	STR 80	1	creek	S.C.
301081606	OTC 20	0	creek	S.C.
301081606	OTC 40	0	creek	S.C.
301081606	OTC 60	0	creek	S.C.
301081606	OTC 80	0	creek	S.C.
301081606	CTC 20	1	creek	S.C.
301081606	CTC 40	0	creek	S.C.
301081606	CTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
301081606	CTC 80	0	creek	S.C.
302081606	VAN 1	2	creek	S.C.
302081606	VAN 3	2	creek	S.C.
302081606	VAN 5	0	creek	S.C.
302081606	VAN 10	0	creek	S.C.
302081606	ERY 1	1	creek	S.C.
302081606	ERY 3	0	creek	S.C.
302081606	ERY 5	0	creek	S.C.
302081606	ERY 10	0	creek	S.C.
302081606	STR 20	0	creek	S.C.
302081606	STR 40	0	creek	S.C.
302081606	STR 60	0	creek	S.C.
302081606	STR 80	0	creek	S.C.
302081606	OTC 20	0	creek	S.C.
302081606	OTC 40	0	creek	S.C.
302081606	OTC 60	0	creek	S.C.
302081606	OTC 80	0	creek	S.C.
302081606	CTC 20	1	creek	S.C.
302081606	CTC 40	0	creek	S.C.
302081606	CTC 60	0	creek	S.C.
302081606	CTC 80	0	creek	S.C.
303081606	VAN 1	2	creek	S.C.
303081606	VAN 3	2	creek	S.C.
303081606	VAN 5	0	creek	S.C.
303081606	VAN 10	0	creek	S.C.
303081606	ERY 1	1	creek	S.C.
303081606	ERY 3	1	creek	S.C.
303081606	ERY 5	0	creek	S.C.
303081606	ERY 10	0	creek	S.C.
303081606	STR 20	1	creek	S.C.
303081606	STR 40	0	creek	S.C.
303081606	STR 60	0	creek	S.C.
303081606	STR 80	0	creek	S.C.
303081606	OTC 20	0	creek	S.C.
303081606	OTC 40	0	creek	S.C.
303081606	OTC 60	0	creek	S.C.
303081606	OTC 80	0	creek	S.C.
303081606	CTC 20	1	creek	S.C.
303081606	CTC 40	0	creek	S.C.
303081606	CTC 60	0	creek	S.C.
303081606	CTC 80	0	creek	S.C.
401081606	VAN 1	2	creek	S.C.
401081606	VAN 3	2	creek	S.C.
401081606	VAN 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
401081606	VAN 10	0	creek	S.C.
401081606	ERY 1	1	creek	S.C.
401081606	ERY 3	0	creek	S.C.
401081606	ERY 5	0	creek	S.C.
401081606	ERY 10	0	creek	S.C.
401081606	STR 20	0	creek	S.C.
401081606	STR 40	0	creek	S.C.
401081606	STR 60	0	creek	S.C.
401081606	STR 80	0	creek	S.C.
401081606	OTC 20	0	creek	S.C.
401081606	OTC 40	0	creek	S.C.
401081606	OTC 60	0	creek	S.C.
401081606	OTC 80	0	creek	S.C.
401081606	CTC 20	1	creek	S.C.
401081606	CTC 40	0	creek	S.C.
401081606	CTC 60	0	creek	S.C.
401081606	CTC 80	0	creek	S.C.
402081606	VAN 1	2	creek	S.C.
402081606	VAN 3	2	creek	S.C.
402081606	VAN 5	0	creek	S.C.
402081606	VAN 10	0	creek	S.C.
402081606	ERY 1	1	creek	S.C.
402081606	ERY 3	0	creek	S.C.
402081606	ERY 5	0	creek	S.C.
402081606	ERY 10	0	creek	S.C.
402081606	STR 20	1	creek	S.C.
402081606	STR 40	0	creek	S.C.
402081606	STR 60	0	creek	S.C.
402081606	STR 80	0	creek	S.C.
402081606	OTC 20	0	creek	S.C.
402081606	OTC 40	0	creek	S.C.
402081606	OTC 60	0	creek	S.C.
402081606	OTC 80	0	creek	S.C.
402081606	CTC 20	1	creek	S.C.
402081606	CTC 40	0	creek	S.C.
402081606	CTC 60	0	creek	S.C.
402081606	CTC 80	0	creek	S.C.
501081606	VAN 1	2	creek	S.C.
501081606	VAN 3	2	creek	S.C.
501081606	VAN 5	0	creek	S.C.
501081606	VAN 10	0	creek	S.C.
501081606	ERY 1	0	creek	S.C.
501081606	ERY 3	0	creek	S.C.
501081606	ERY 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
501081606	ERY 10	0	creek	S.C.
501081606	STR 20	0	creek	S.C.
501081606	STR 40	0	creek	S.C.
501081606	STR 60	0	creek	S.C.
501081606	STR 80	0	creek	S.C.
501081606	OTC 20	0	creek	S.C.
501081606	OTC 40	0	creek	S.C.
501081606	OTC 60	0	creek	S.C.
501081606	OTC 80	0	creek	S.C.
501081606	CTC 20	1	creek	S.C.
501081606	CTC 40	0	creek	S.C.
501081606	CTC 60	0	creek	S.C.
501081606	CTC 80	0	creek	S.C.
502081606	VAN 1	2	creek	S.C.
502081606	VAN 3	2	creek	S.C.
502081606	VAN 5	0	creek	S.C.
502081606	VAN 10	0	creek	S.C.
502081606	ERY 1	2	creek	S.C.
502081606	ERY 3	1	creek	S.C.
502081606	ERY 5	0	creek	S.C.
502081606	ERY 10	0	creek	S.C.
502081606	STR 20	1	creek	S.C.
502081606	STR 40	0	creek	S.C.
502081606	STR 60	0	creek	S.C.
502081606	STR 80	0	creek	S.C.
502081606	OTC 20	0	creek	S.C.
502081606	OTC 40	0	creek	S.C.
502081606	OTC 60	0	creek	S.C.
502081606	OTC 80	0	creek	S.C.
502081606	CTC 20	1	creek	S.C.
502081606	CTC 40	0	creek	S.C.
502081606	CTC 60	0	creek	S.C.
502081606	CTC 80	0	creek	S.C.
503081606	VAN 1	2	creek	S.C.
503081606	VAN 3	2	creek	S.C.
503081606	VAN 5	0	creek	S.C.
503081606	VAN 10	0	creek	S.C.
503081606	ERY 1	2	creek	S.C.
503081606	ERY 3	0	creek	S.C.
503081606	ERY 5	0	creek	S.C.
503081606	ERY 10	0	creek	S.C.
503081606	STR 20	0	creek	S.C.
503081606	STR 40	0	creek	S.C.
503081606	STR 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
503081606	STR 80	0	creek	S.C.
503081606	OTC 20	0	creek	S.C.
503081606	OTC 40	0	creek	S.C.
503081606	OTC 60	0	creek	S.C.
503081606	OTC 80	0	creek	S.C.
503081606	CTC 20	1	creek	S.C.
503081606	CTC 40	0	creek	S.C.
503081606	CTC 60	0	creek	S.C.
503081606	CTC 80	0	creek	S.C.
504081606	VAN 1	2	creek	S.C.
504081606	VAN 3	2	creek	S.C.
504081606	VAN 5	0	creek	S.C.
504081606	VAN 10	0	creek	S.C.
504081606	ERY 1	1	creek	S.C.
504081606	ERY 3	0	creek	S.C.
504081606	ERY 5	0	creek	S.C.
504081606	ERY 10	0	creek	S.C.
504081606	STR 20	0	creek	S.C.
504081606	STR 40	0	creek	S.C.
504081606	STR 60	0	creek	S.C.
504081606	STR 80	0	creek	S.C.
504081606	OTC 20	0	creek	S.C.
504081606	OTC 40	0	creek	S.C.
504081606	OTC 60	0	creek	S.C.
504081606	OTC 80	0	creek	S.C.
504081606	CTC 20	1	creek	S.C.
504081606	CTC 40	0	creek	S.C.
504081606	CTC 60	0	creek	S.C.
504081606	CTC 80	0	creek	S.C.
601081606	VAN 1	0	creek	S.C.
601081606	VAN 3	0	creek	S.C.
601081606	VAN 5	0	creek	S.C.
601081606	VAN 10	0	creek	S.C.
601081606	ERY 1	0	creek	S.C.
601081606	ERY 3	0	creek	S.C.
601081606	ERY 5	0	creek	S.C.
601081606	ERY 10	0	creek	S.C.
601081606	STR 20	1	creek	S.C.
601081606	STR 40	1	creek	S.C.
601081606	STR 60	0	creek	S.C.
601081606	STR 80	0	creek	S.C.
601081606	OTC 20	0	creek	S.C.
601081606	OTC 40	0	creek	S.C.
601081606	OTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
601081606	OTC 80	0	creek	S.C.
601081606	CTC 20	1	creek	S.C.
601081606	CTC 40	0	creek	S.C.
601081606	CTC 60	0	creek	S.C.
601081606	CTC 80	0	creek	S.C.
602081606	VAN 1	2	creek	S.C.
602081606	VAN 3	2	creek	S.C.
602081606	VAN 5	0	creek	S.C.
602081606	VAN 10	0	creek	S.C.
602081606	ERY 1	1	creek	S.C.
602081606	ERY 3	1	creek	S.C.
602081606	ERY 5	0	creek	S.C.
602081606	ERY 10	0	creek	S.C.
602081606	STR 20	1	creek	S.C.
602081606	STR 40	0	creek	S.C.
602081606	STR 60	0	creek	S.C.
602081606	STR 80	0	creek	S.C.
602081606	OTC 20	0	creek	S.C.
602081606	OTC 40	0	creek	S.C.
602081606	OTC 60	0	creek	S.C.
602081606	OTC 80	0	creek	S.C.
602081606	CTC 20	1	creek	S.C.
602081606	CTC 40	0	creek	S.C.
602081606	CTC 60	0	creek	S.C.
602081606	CTC 80	0	creek	S.C.
701081606	VAN 1	2	creek	S.C.
701081606	VAN 3	2	creek	S.C.
701081606	VAN 5	0	creek	S.C.
701081606	VAN 10	0	creek	S.C.
701081606	ERY 1	1	creek	S.C.
701081606	ERY 3	0	creek	S.C.
701081606	ERY 5	0	creek	S.C.
701081606	ERY 10	0	creek	S.C.
701081606	STR 20	1	creek	S.C.
701081606	STR 40	0	creek	S.C.
701081606	STR 60	0	creek	S.C.
701081606	STR 80	0	creek	S.C.
701081606	OTC 20	0	creek	S.C.
701081606	OTC 40	0	creek	S.C.
701081606	OTC 60	0	creek	S.C.
701081606	OTC 80	0	creek	S.C.
701081606	CTC 20	1	creek	S.C.
701081606	CTC 40	0	creek	S.C.
701081606	CTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
701081606	CTC 80	0	creek	S.C.
702081606	VAN 1	2	creek	S.C.
702081606	VAN 3	2	creek	S.C.
702081606	VAN 5	0	creek	S.C.
702081606	VAN 10	0	creek	S.C.
702081606	ERY 1	2	creek	S.C.
702081606	ERY 3	1	creek	S.C.
702081606	ERY 5	0	creek	S.C.
702081606	ERY 10	0	creek	S.C.
702081606	STR 20	1	creek	S.C.
702081606	STR 40	0	creek	S.C.
702081606	STR 60	0	creek	S.C.
702081606	STR 80	0	creek	S.C.
702081606	OTC 20	0	creek	S.C.
702081606	OTC 40	0	creek	S.C.
702081606	OTC 60	0	creek	S.C.
702081606	OTC 80	0	creek	S.C.
702081606	CTC 20	1	creek	S.C.
702081606	CTC 40	0	creek	S.C.
702081606	CTC 60	0	creek	S.C.
702081606	CTC 80	0	creek	S.C.
703081606	VAN 1	2	creek	S.C.
703081606	VAN 3	2	creek	S.C.
703081606	VAN 5	0	creek	S.C.
703081606	VAN 10	0	creek	S.C.
703081606	ERY 1	2	creek	S.C.
703081606	ERY 3	1	creek	S.C.
703081606	ERY 5	0	creek	S.C.
703081606	ERY 10	0	creek	S.C.
703081606	STR 20	1	creek	S.C.
703081606	STR 40	0	creek	S.C.
703081606	STR 60	0	creek	S.C.
703081606	STR 80	0	creek	S.C.
703081606	OTC 20	0	creek	S.C.
703081606	OTC 40	0	creek	S.C.
703081606	OTC 60	0	creek	S.C.
703081606	OTC 80	0	creek	S.C.
703081606	CTC 20	1	creek	S.C.
703081606	CTC 40	0	creek	S.C.
703081606	CTC 60	0	creek	S.C.
703081606	CTC 80	0	creek	S.C.
704081606	VAN 1	2	creek	S.C.
704081606	VAN 3	2	creek	S.C.
704081606	VAN 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
704081606	VAN 10	0	creek	S.C.
704081606	ERY 1	1	creek	S.C.
704081606	ERY 3	0	creek	S.C.
704081606	ERY 5	0	creek	S.C.
704081606	ERY 10	0	creek	S.C.
704081606	STR 20	0	creek	S.C.
704081606	STR 40	0	creek	S.C.
704081606	STR 60	0	creek	S.C.
704081606	STR 80	0	creek	S.C.
704081606	OTC 20	0	creek	S.C.
704081606	OTC 40	0	creek	S.C.
704081606	OTC 60	0	creek	S.C.
704081606	OTC 80	0	creek	S.C.
704081606	CTC 20	1	creek	S.C.
704081606	CTC 40	0	creek	S.C.
704081606	CTC 60	0	creek	S.C.
704081606	CTC 80	0	creek	S.C.
801081606	VAN 1	2	creek	S.C.
801081606	VAN 3	2	creek	S.C.
801081606	VAN 5	0	creek	S.C.
801081606	VAN 10	0	creek	S.C.
801081606	ERY 1	2	creek	S.C.
801081606	ERY 3	1	creek	S.C.
801081606	ERY 5	0	creek	S.C.
801081606	ERY 10	0	creek	S.C.
801081606	STR 20	0	creek	S.C.
801081606	STR 40	0	creek	S.C.
801081606	STR 60	0	creek	S.C.
801081606	STR 80	0	creek	S.C.
801081606	OTC 20	0	creek	S.C.
801081606	OTC 40	0	creek	S.C.
801081606	OTC 60	0	creek	S.C.
801081606	OTC 80	0	creek	S.C.
801081606	CTC 20	0	creek	S.C.
801081606	CTC 40	0	creek	S.C.
801081606	CTC 60	0	creek	S.C.
801081606	CTC 80	0	creek	S.C.
802081606	VAN 1	2	creek	S.C.
802081606	VAN 3	2	creek	S.C.
802081606	VAN 5	1	creek	S.C.
802081606	VAN 10	0	creek	S.C.
802081606	ERY 1	1	creek	S.C.
802081606	ERY 3	0	creek	S.C.
802081606	ERY 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
802081606	ERY 10	0	creek	S.C.
802081606	STR 20	1	creek	S.C.
802081606	STR 40	0	creek	S.C.
802081606	STR 60	0	creek	S.C.
802081606	STR 80	0	creek	S.C.
802081606	OTC 20	0	creek	S.C.
802081606	OTC 40	0	creek	S.C.
802081606	OTC 60	0	creek	S.C.
802081606	OTC 80	0	creek	S.C.
802081606	CTC 20	0	creek	S.C.
802081606	CTC 40	0	creek	S.C.
802081606	CTC 60	0	creek	S.C.
802081606	CTC 80	0	creek	S.C.
901081606	VAN 1	2	creek	S.C.
901081606	VAN 3	2	creek	S.C.
901081606	VAN 5	1	creek	S.C.
901081606	VAN 10	0	creek	S.C.
901081606	ERY 1	0	creek	S.C.
901081606	ERY 3	0	creek	S.C.
901081606	ERY 5	0	creek	S.C.
901081606	ERY 10	0	creek	S.C.
901081606	STR 20	0	creek	S.C.
901081606	STR 40	0	creek	S.C.
901081606	STR 60	0	creek	S.C.
901081606	STR 80	0	creek	S.C.
901081606	OTC 20	0	creek	S.C.
901081606	OTC 40	0	creek	S.C.
901081606	OTC 60	0	creek	S.C.
901081606	OTC 80	0	creek	S.C.
901081606	CTC 20	1	creek	S.C.
901081606	CTC 40	0	creek	S.C.
901081606	CTC 60	0	creek	S.C.
901081606	CTC 80	0	creek	S.C.
903081606	VAN 1	2	creek	S.C.
903081606	VAN 3	1	creek	S.C.
903081606	VAN 5	0	creek	S.C.
903081606	VAN 10	0	creek	S.C.
903081606	ERY 1	1	creek	S.C.
903081606	ERY 3	0	creek	S.C.
903081606	ERY 5	0	creek	S.C.
903081606	ERY 10	0	creek	S.C.
903081606	STR 20	1	creek	S.C.
903081606	STR 40	0	creek	S.C.
903081606	STR 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
903081606	STR 80	0	creek	S.C.
903081606	OTC 20	0	creek	S.C.
903081606	OTC 40	0	creek	S.C.
903081606	OTC 60	0	creek	S.C.
903081606	OTC 80	0	creek	S.C.
903081606	CTC 20	1	creek	S.C.
903081606	CTC 40	0	creek	S.C.
903081606	CTC 60	0	creek	S.C.
903081606	CTC 80	0	creek	S.C.
1001081606	VAN 1	2	creek	S.C.
1001081606	VAN 3	2	creek	S.C.
1001081606	VAN 5	0	creek	S.C.
1001081606	VAN 10	0	creek	S.C.
1001081606	ERY 1	2	creek	S.C.
1001081606	ERY 3	1	creek	S.C.
1001081606	ERY 5	0	creek	S.C.
1001081606	ERY 10	0	creek	S.C.
1001081606	STR 20	1	creek	S.C.
1001081606	STR 40	1	creek	S.C.
1001081606	STR 60	0	creek	S.C.
1001081606	STR 80	0	creek	S.C.
1001081606	OTC 20	0	creek	S.C.
1001081606	OTC 40	0	creek	S.C.
1001081606	OTC 60	0	creek	S.C.
1001081606	OTC 80	0	creek	S.C.
1001081606	CTC 20	1	creek	S.C.
1001081606	CTC 40	0	creek	S.C.
1001081606	CTC 60	0	creek	S.C.
1001081606	CTC 80	0	creek	S.C.
1002081606	VAN 1	2	creek	S.C.
1002081606	VAN 3	2	creek	S.C.
1002081606	VAN 5	1	creek	S.C.
1002081606	VAN 10	0	creek	S.C.
1002081606	ERY 1	2	creek	S.C.
1002081606	ERY 3	1	creek	S.C.
1002081606	ERY 5	0	creek	S.C.
1002081606	ERY 10	0	creek	S.C.
1002081606	STR 20	1	creek	S.C.
1002081606	STR 40	1	creek	S.C.
1002081606	STR 60	0	creek	S.C.
1002081606	STR 80	0	creek	S.C.
1002081606	OTC 20	0	creek	S.C.
1002081606	OTC 40	0	creek	S.C.
1002081606	OTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1002081606	OTC 80	0	creek	S.C.
1002081606	CTC 20	1	creek	S.C.
1002081606	CTC 40	0	creek	S.C.
1002081606	CTC 60	0	creek	S.C.
1002081606	CTC 80	0	creek	S.C.
1003081606	VAN 1	2	creek	S.C.
1003081606	VAN 3	2	creek	S.C.
1003081606	VAN 5	0	creek	S.C.
1003081606	VAN 10	0	creek	S.C.
1003081606	ERY 1	2	creek	S.C.
1003081606	ERY 3	0	creek	S.C.
1003081606	ERY 5	0	creek	S.C.
1003081606	ERY 10	0	creek	S.C.
1003081606	STR 20	1	creek	S.C.
1003081606	STR 40	0	creek	S.C.
1003081606	STR 60	0	creek	S.C.
1003081606	STR 80	0	creek	S.C.
1003081606	OTC 20	0	creek	S.C.
1003081606	OTC 40	0	creek	S.C.
1003081606	OTC 60	0	creek	S.C.
1003081606	OTC 80	0	creek	S.C.
1003081606	CTC 20	1	creek	S.C.
1003081606	CTC 40	0	creek	S.C.
1003081606	CTC 60	0	creek	S.C.
1003081606	CTC 80	0	creek	S.C.
1201081606	VAN 1	1	creek	S.C.
1201081606	VAN 3	0	creek	S.C.
1201081606	VAN 5	0	creek	S.C.
1201081606	VAN 10	0	creek	S.C.
1201081606	ERY 1	0	creek	S.C.
1201081606	ERY 3	0	creek	S.C.
1201081606	ERY 5	0	creek	S.C.
1201081606	ERY 10	0	creek	S.C.
1201081606	STR 20	1	creek	S.C.
1201081606	STR 40	1	creek	S.C.
1201081606	STR 60	0	creek	S.C.
1201081606	STR 80	0	creek	S.C.
1201081606	OTC 20	0	creek	S.C.
1201081606	OTC 40	0	creek	S.C.
1201081606	OTC 60	0	creek	S.C.
1201081606	OTC 80	0	creek	S.C.
1201081606	CTC 20	1	creek	S.C.
1201081606	CTC 40	0	creek	S.C.
1201081606	CTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1201081606	CTC 80	0	creek	S.C.
1202081606	VAN 1	2	creek	S.C.
1202081606	VAN 3	2	creek	S.C.
1202081606	VAN 5	0	creek	S.C.
1202081606	VAN 10	0	creek	S.C.
1202081606	ERY 1	0	creek	S.C.
1202081606	ERY 3	0	creek	S.C.
1202081606	ERY 5	0	creek	S.C.
1202081606	ERY 10	0	creek	S.C.
1202081606	STR 20	1	creek	S.C.
1202081606	STR 40	0	creek	S.C.
1202081606	STR 60	0	creek	S.C.
1202081606	STR 80	0	creek	S.C.
1202081606	OTC 20	0	creek	S.C.
1202081606	OTC 40	0	creek	S.C.
1202081606	OTC 60	0	creek	S.C.
1202081606	OTC 80	0	creek	S.C.
1202081606	CTC 20	0	creek	S.C.
1202081606	CTC 40	0	creek	S.C.
1202081606	CTC 60	0	creek	S.C.
1202081606	CTC 80	0	creek	S.C.
1203081606	VAN 1	1	creek	S.C.
1203081606	VAN 3	1	creek	S.C.
1203081606	VAN 5	0	creek	S.C.
1203081606	VAN 10	0	creek	S.C.
1203081606	ERY 1	0	creek	S.C.
1203081606	ERY 3	0	creek	S.C.
1203081606	ERY 5	0	creek	S.C.
1203081606	ERY 10	0	creek	S.C.
1203081606	STR 20	2	creek	S.C.
1203081606	STR 40	2	creek	S.C.
1203081606	STR 60	1	creek	S.C.
1203081606	STR 80	0	creek	S.C.
1203081606	OTC 20	0	creek	S.C.
1203081606	OTC 40	0	creek	S.C.
1203081606	OTC 60	0	creek	S.C.
1203081606	OTC 80	0	creek	S.C.
1203081606	CTC 20	0	creek	S.C.
1203081606	CTC 40	0	creek	S.C.
1203081606	CTC 60	0	creek	S.C.
1203081606	CTC 80	0	creek	S.C.
1301081606	VAN 1	2	creek	S.C.
1301081606	VAN 3	2	creek	S.C.
1301081606	VAN 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1301081606	VAN 10	0	creek	S.C.
1301081606	ERY 1	1	creek	S.C.
1301081606	ERY 3	1	creek	S.C.
1301081606	ERY 5	0	creek	S.C.
1301081606	ERY 10	0	creek	S.C.
1301081606	STR 20	1	creek	S.C.
1301081606	STR 40	0	creek	S.C.
1301081606	STR 60	0	creek	S.C.
1301081606	STR 80	0	creek	S.C.
1301081606	OTC 20	0	creek	S.C.
1301081606	OTC 40	0	creek	S.C.
1301081606	OTC 60	0	creek	S.C.
1301081606	OTC 80	0	creek	S.C.
1301081606	CTC 20	0	creek	S.C.
1301081606	CTC 40	0	creek	S.C.
1301081606	CTC 60	0	creek	S.C.
1301081606	CTC 80	0	creek	S.C.
1302081606	VAN 1	1	creek	S.C.
1302081606	VAN 3	0	creek	S.C.
1302081606	VAN 5	0	creek	S.C.
1302081606	VAN 10	0	creek	S.C.
1302081606	ERY 1	0	creek	S.C.
1302081606	ERY 3	0	creek	S.C.
1302081606	ERY 5	0	creek	S.C.
1302081606	ERY 10	0	creek	S.C.
1302081606	STR 20	2	creek	S.C.
1302081606	STR 40	1	creek	S.C.
1302081606	STR 60	0	creek	S.C.
1302081606	STR 80	0	creek	S.C.
1302081606	OTC 20	0	creek	S.C.
1302081606	OTC 40	0	creek	S.C.
1302081606	OTC 60	0	creek	S.C.
1302081606	OTC 80	0	creek	S.C.
1302081606	CTC 20	1	creek	S.C.
1302081606	CTC 40	0	creek	S.C.
1302081606	CTC 60	0	creek	S.C.
1302081606	CTC 80	0	creek	S.C.
1303081606	VAN 1	1	creek	S.C.
1303081606	VAN 3	0	creek	S.C.
1303081606	VAN 5	0	creek	S.C.
1303081606	VAN 10	0	creek	S.C.
1303081606	ERY 1	0	creek	S.C.
1303081606	ERY 3	0	creek	S.C.
1303081606	ERY 5	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1303081606	ERY 10	0	creek	S.C.
1303081606	STR 20	1	creek	S.C.
1303081606	STR 40	1	creek	S.C.
1303081606	STR 60	0	creek	S.C.
1303081606	STR 80	0	creek	S.C.
1303081606	OTC 20	0	creek	S.C.
1303081606	OTC 40	0	creek	S.C.
1303081606	OTC 60	0	creek	S.C.
1303081606	OTC 80	0	creek	S.C.
1303081606	CTC 20	0	creek	S.C.
1303081606	CTC 40	0	creek	S.C.
1303081606	CTC 60	0	creek	S.C.
1303081606	CTC 80	0	creek	S.C.
1401081606	VAN 1	2	creek	S.C.
1401081606	VAN 3	0	creek	S.C.
1401081606	VAN 5	0	creek	S.C.
1401081606	VAN 10	0	creek	S.C.
1401081606	ERY 1	0	creek	S.C.
1401081606	ERY 3	0	creek	S.C.
1401081606	ERY 5	0	creek	S.C.
1401081606	ERY 10	0	creek	S.C.
1401081606	STR 20	2	creek	S.C.
1401081606	STR 40	1	creek	S.C.
1401081606	STR 60	0	creek	S.C.
1401081606	STR 80	0	creek	S.C.
1401081606	OTC 20	0	creek	S.C.
1401081606	OTC 40	0	creek	S.C.
1401081606	OTC 60	0	creek	S.C.
1401081606	OTC 80	0	creek	S.C.
1401081606	CTC 20	1	creek	S.C.
1401081606	CTC 40	0	creek	S.C.
1401081606	CTC 60	0	creek	S.C.
1401081606	CTC 80	0	creek	S.C.
1402081606	VAN 1	2	creek	S.C.
1402081606	VAN 3	0	creek	S.C.
1402081606	VAN 5	0	creek	S.C.
1402081606	VAN 10	0	creek	S.C.
1402081606	ERY 1	0	creek	S.C.
1402081606	ERY 3	0	creek	S.C.
1402081606	ERY 5	0	creek	S.C.
1402081606	ERY 10	0	creek	S.C.
1402081606	STR 20	2	creek	S.C.
1402081606	STR 40	1	creek	S.C.
1402081606	STR 60	1	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1402081606	STR 80	0	creek	S.C.
1402081606	OTC 20	0	creek	S.C.
1402081606	OTC 40	0	creek	S.C.
1402081606	OTC 60	0	creek	S.C.
1402081606	OTC 80	0	creek	S.C.
1402081606	CTC 20	1	creek	S.C.
1402081606	CTC 40	0	creek	S.C.
1402081606	CTC 60	0	creek	S.C.
1402081606	CTC 80	0	creek	S.C.
1403081606	VAN 1	2	creek	S.C.
1403081606	VAN 3	2	creek	S.C.
1403081606	VAN 5	0	creek	S.C.
1403081606	VAN 10	0	creek	S.C.
1403081606	ERY 1	2	creek	S.C.
1403081606	ERY 3	0	creek	S.C.
1403081606	ERY 5	0	creek	S.C.
1403081606	ERY 10	0	creek	S.C.
1403081606	STR 20	1	creek	S.C.
1403081606	STR 40	0	creek	S.C.
1403081606	STR 60	0	creek	S.C.
1403081606	STR 80	0	creek	S.C.
1403081606	OTC 20	0	creek	S.C.
1403081606	OTC 40	0	creek	S.C.
1403081606	OTC 60	0	creek	S.C.
1403081606	OTC 80	0	creek	S.C.
1403081606	CTC 20	1	creek	S.C.
1403081606	CTC 40	0	creek	S.C.
1403081606	CTC 60	0	creek	S.C.
1403081606	CTC 80	0	creek	S.C.
1404081606	VAN 1	2	creek	S.C.
1404081606	VAN 3	0	creek	S.C.
1404081606	VAN 5	0	creek	S.C.
1404081606	VAN 10	0	creek	S.C.
1404081606	ERY 1	0	creek	S.C.
1404081606	ERY 3	0	creek	S.C.
1404081606	ERY 5	0	creek	S.C.
1404081606	ERY 10	0	creek	S.C.
1404081606	STR 20	1	creek	S.C.
1404081606	STR 40	1	creek	S.C.
1404081606	STR 60	1	creek	S.C.
1404081606	STR 80	0	creek	S.C.
1404081606	OTC 20	0	creek	S.C.
1404081606	OTC 40	0	creek	S.C.
1404081606	OTC 60	0	creek	S.C.

Isolate	Antibiotic	Score	Source	Location
1404081606	OTC 80	0	creek	S.C.
1404081606	CTC 20	1	creek	S.C.
1404081606	CTC 40	0	creek	S.C.
1404081606	CTC 60	0	creek	S.C.
1404081606	CTC 80	0	creek	S.C.
1404081606	VAN 1	2	creek	S.C.
1404081606	VAN 3	0	creek	S.C.
1404081606	VAN 5	0	creek	S.C.
1404081606	VAN 10	0	creek	S.C.
1404081606	ERY 1	0	creek	S.C.
1404081606	ERY 3	0	creek	S.C.
1404081606	ERY 5	0	creek	S.C.
1404081606	ERY 10	0	creek	S.C.
1404081606	STR 20	1	creek	S.C.
1404081606	STR 40	1	creek	S.C.
1404081606	STR 60	1	creek	S.C.
1404081606	STR 80	0	creek	S.C.
1404081606	OTC 20	0	creek	S.C.
1404081606	OTC 40	0	creek	S.C.
1404081606	OTC 60	0	creek	S.C.
1404081606	OTC 80	0	creek	S.C.
1404081606	CTC 20	1	creek	S.C.
1404081606	CTC 40	0	creek	S.C.
1404081606	CTC 60	0	creek	S.C.
1404081606	CTC 80	0	creek	S.C.

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Publications:	Gallagher, L.K. and M.L. Crimi (2007). Coupling Persulfate ISCO with Bioprocesses: A Review of Key Processes. The 5th International Conference on Oxidation and Reduction Technologies for In Situ Treatment for Soil and Groundwater. September 24 – 27, 2007, Niagara Falls, New York. Oral Presentation.

Gallagher, L.K., Evanshen, B.G., Maier, K.J. and P.R. Scheuerman (2007). Bacterial Source Tracking in the Sinking Creek Watershed Using Antibiotic Resistance Analysis (ARA) and Ribotyping. The American Society for Microbiology 107th General Meeting. May 21 – 25, 2007, Toronto, Ontario. Poster Presentation.

Hall, K.K., Gallagher, L.K., Evanshen, B.G., Maier, K.J. and P.R. Scheuerman (2006). Comparison of Microbial Water Quality Parameters of Four Geographically Similar Creeks in Northeast Tennessee. The American Society for Microbiology 106th General Meeting. May 21 – 25, 2006, Orlando, Florida. Poster Presentation.

Honors and Awards:

Academic Award, East Tennessee State University Women's Soccer Program, 2000 and 2002.

Faculty Award, East Tennessee State University Department of Health Sciences, 2002.

East Tennessee Aquatic Stewardship Award, Boone Watershed Alliance, 2006.