

FLUSHING THE FOURTH AMENDMENT DOWN THE TOILET: HOW COMMUNITY URINALYSIS THREATENS INDIVIDUAL PRIVACY

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Scientists have developed new technologies that examine tiny samples of municipal sewage for the presence of illegal drugs. These samples are essentially a drug test for an entire community, making them akin to a “community urinalysis.” Public health experts hope to use the data generated from community urinalysis to create a more accurate profile of drug use in America. Civil libertarians, however, fear that law enforcement will ultimately use this technology to monitor every home for drug use. This Note explores the Fourth Amendment implications of community urinalysis technology. It argues that the testing of a home’s wastewater constitutes a search requiring a warrant. Because plenty of doctrinal room exists for a contrary conclusion, however, the Note also argues that statutes and regulations are potentially a better way to address community urinalysis’s impact on personal liberties.

INTRODUCTION

America has a serious drug habit. According to the National Survey on Drug Use and Health, over twenty million people reported using illicit drugs in 2007.¹ Surveys, however, dramatically underestimate drug use because “[t]he more sensitive and deviant [a] behavior, the more likely it is to be underreported.”² Officials also use emergency room visits, police activity, and autopsy reports to gauge drug use, but these estimates, which determine the allocation of federal

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1. Kevin Freking, *Report: US Drug Use Shows Little Change in 2007*, ASSOCIATED PRESS, Sept. 4, 2008. The Substance Abuse and Mental Health Services Administration (SAMHSA) conducts this survey, which is considered the gold standard of drug testing surveys. Eric Hagerman, *Your Sewer on Drugs*, POPULAR SCI., Mar. 2008, at 44, 46. The study surveys 67,500 people. Freking, *supra*.

2. Hagerman, *supra* note 1.

funding for drug-prevention programs, are based on incomplete information at best.³

Some scientists have recently turned to the sewer to develop a more accurate estimate of drug use. They examine tiny samples of raw sewage for the presence of illicit drugs and their metabolites in a science known as sewer epidemiology.⁴ These samples are essentially a diluted urine test collected from an entire community,⁵ making them akin to a “community urinalysis.”⁶ The basic science is simple: nearly every drug ingested into the body is eventually excreted and finds its way into the sewer system, allowing scientists to profile a community’s drug use based on objective data.⁷

The Environmental Protection Agency (EPA) pioneered drug testing of sewage in 2004 to determine the environmental impact of illegal drugs.⁸ Two years later, the Office for National Drug Control Policy tested wastewater from thirty-four municipalities, including San Diego and Fairfax County, Virginia.⁹ In 2008, Dr. Jennifer Field, a professor of environmental and molecular toxicology at Oregon State University, tested wastewater in Las Vegas,¹⁰ Seattle,¹¹ and twenty other cities in Oregon and Washington.¹² Dr. Field has become the leading

3. *Id.*

4. Abigail Goldman, *We Do Caffeine, but Not Much Hard Stuff*, LAS VEGAS SUN, Apr. 28, 2008, at 1 (describing sewer epidemiology as “the ability to test and follow drug usage patterns from the sewer”); Press Release, Am. Chem. Soc’y, Sewage Tells Tales about Community-Wide Drug Abuse (Aug. 13, 2007), available at <http://www.newswise.com/articles/view/532436> [hereinafter Sewage Tells Tales]. For many drugs, scientists test for their metabolites because these are the compounds left over after the body processes the drug. Goldman, *supra*.

5. Peg Herring, *Detecting Drugs from Caffeine to Cocaine in a Teaspoon of Municipal Wastewater*, OREGON’S AGRIC. PROGRESS, Fall 2007; Press Release, Or. State Univ., Wastewater Chemistry Reveals Patterns of Municipal Drug Use (Aug. 21, 2007), <http://oregonstate.edu/dept/ncs/newsarch/2007/Aug07/drugsinwastewater.html> [hereinafter Wastewater Chemistry].

6. Goldman, *supra* note 4; Hagerman, *supra* note 1.

7. *Teaspoon of Urine Can Drug Test an Entire City*, ASSOCIATED PRESS, Aug. 21, 2007 [hereinafter *Teaspoon*]; Goldman, *supra* note 4.

8. Hagerman, *supra* note 1. The test revealed significant quantities of methamphetamine and ecstasy. *Id.*

9. David Biello, *Flushing Out a Record of Local Drug Use*, SCI. AM., Aug. 21, 2007, <http://www.scientificamerican.com/article.cfm?id=flushing-out-local-drug-use>; Hagerman, *supra* note 1; Bill Turque, *Sewage Tested for Signs of Cocaine*, WASH. POST, Mar. 27, 2006, at B01.

10. Goldman, *supra* note 4.

11. Tom Banse, *Oregon Gets Statewide Drug Test; Washington Likely Next*, OR. PUB. BROAD., Mar. 17, 2008, <http://news.opb.org/article/1589-oregon-gets-statewide-drug-test-washington-likely-next>.

12. *Id.* Dr. Field also announced her goal of creating a comprehensive profile of Oregon’s drug use by testing wastewater from 130 cities for 17 substances. Hagerman, *supra* note 1; Banse, *supra* note 11. Dr. Field is testing for illegal drugs like methamphetamine, ecstasy, and cocaine (and its metabolite, benzoylecgonine), controlled drugs like oxycodone, methadone, morphine, hydrocodone, and legal substances like cotinine (nicotine’s metabolite) and caffeine. Hagerman, *supra* note 1.

scientist in her discipline by improving traditional drug-testing methods, allowing for cost-effective and extraordinarily precise analysis of sewage samples.¹³

Community urinalysis thus produces a more accurate picture of drug use¹⁴ than surveys and at less cost.¹⁵ The data it generates allows scientists to track drug use in real time across a greater percentage of the population while preserving individual anonymity.¹⁶ Scientists can also use the data to analyze drug use from many perspectives, including geographic,¹⁷ temporal,¹⁸ socio-economic,¹⁹ and environmental.²⁰

13. Dr. Field eliminated costly and time-consuming steps in the testing process. She uses a liquid chromatograph, which separates the sample's molecules, and a mass spectrometer, which ionizes the molecules and identifies them based on their unique mass and structure. Hagerman, *supra* note 1. Dr. Field improved on typical mass spectrometry methods by eliminating the need for costly solvents and time-consuming off-line processes. Sewage Tells Tales, *supra* note 4. She also identified common biomarkers, such as nicotine and caffeine, that allow the identification of narcotics at a concentration of nanograms per liter, or parts per trillion, the equivalent of spotting a square-foot tile on a floor the size of Indiana. Hagerman, *supra* note 1.

14. Testing in Milan has revealed that people use twice as much cocaine as Italian government surveys suggested. Marla Cone, *One Big Drug Test: Analyzing a City's Sewage Can Put a Number on its Vices*, L.A. TIMES, June 23, 2008, <http://articles.latimes.com/2008/jun/23/local/me-sewer23>.

15. Hagerman, *supra* note 1 (noting that surveys can take one year to process); Goldman *supra* note 4; Sewage Tells Tales, *supra* note 4 (describing the technology as a fast, reliable, and inexpensive way to track trends of drug use at local, regional or state level). Scientists hope to use the technology to produce the first objective picture of drug use. Hagerman, *supra* note 1.

16. Clive Thompson, *Community Urinalysis*, N.Y. TIMES, Dec. 9, 2007, at 662. Wastewater Chemistry, *supra* note 5; Herring, *supra* note 5; Josh Cable, *Researchers Believe Wastewater Analysis Tool Could Improve Drug Surveillance*, GOVPRO.COM, Aug. 31, 2007, <http://www.govpro.com/News/Article/70582/>. Although it is still an involuntary sample, it preserves anonymity if it is conducted at a wastewater treatment facility. Thompson, *supra*.

17. The studies demonstrate that drug use varies geographically. *E.g.*, Cone, *supra* note 10 (revealing that Las Vegas has heavier methamphetamine use than other cities, Los Angeles has heavier cocaine use, and London has heavier heroin use); *Teaspoon*, *supra* note 7 (noting that one affluent community used cocaine almost exclusively). Dr. Field ultimately wants to use her results to generate interactive maps of drug use. *OR Gets a Statewide Drug Test; WA Likely to be Next*, NW. PUB. RADIO, Mar. 14, 2008, <http://www.nwpr.org/07/HomepageArticles/Article.aspx?n=3697> [hereinafter *OR Gets Drug Test*].

18. *Teaspoon*, *supra* note 7 (finding that cocaine and ecstasy use peaks on weekends, while methamphetamine and prescription drug use is constant throughout the week); Biello, *supra* note 9 (finding that cocaine use started increasing as early as Thursday).

19. Jorg Rickermann, a research fellow at San Diego State University, will correlate data generated from community urinalysis with sociological data about race and income levels. Hagerman, *supra* note 1.

20. The EPA is determining whether it can use this technology to estimate the potential harms drug use inflicts on the environment. *Teaspoon*, *supra* note 7.

Although scientists point out that technical flaws still exist with community urinalysis,²¹ civil libertarians harbor a far more ominous concern: that community urinalysis could be used by law enforcement to “tap” plumbing in the same way they can tap telephone lines.²² Law enforcement could use the principles behind community urinalysis to test individual neighborhoods, or even individual homes, for evidence of drug activity.²³

Clearly, once effective and economical wastewater-testing methods are perfected, the proverbial genie is out of the bottle, allowing anyone to use the technology for any purpose.²⁴ This Note analyzes the possible Fourth Amendment implications of community urinalysis and sewer epidemiology. It argues that the use of community urinalysis technology on an individual home is a search, requiring a warrant under the Fourth Amendment. Because plenty of argumentative room exists for a contrary conclusion as a matter of constitutional law, this Note further argues that statutes and regulations are a better method for addressing any future proliferation of wastewater-monitoring technology.

This Note contains three parts. Part I argues that testing a home’s wastewater is a search. Part II examines other possible uses of community urinalysis technology, including testing of wastewater plants, schools, and private buildings, and argues that constitutional law is largely ineffective at restricting these uses. Part III argues that statutes and regulations can better protect the liberty interests implicated by wastewater monitoring and ultimately recommends a statutory framework that balances the liberty interests at stake with the technology’s potential benefits.

21. For example, drug-use estimates generated from these tests rely on debatable assumptions made by scientists about many variables. Hagerman, *supra* note 1; Goldman *supra* note 4. These assumptions include the average drug use per person, the average volume of a dose of drugs, the frequency of doses, excretion rates, and the number of tourists and commuters present in the system at any given time. Hagerman, *supra* note 1; Wastewater Chemistry, *supra* note 5.

22. Hagerman, *supra* note 1. Dr. Field concedes that law enforcement co-opting this technology is an “unavoidable possibility.” Goldman, *supra* note 4.

23. Hagerman, *supra* note 1 (“Law-enforcement agencies could set up a monitoring index and even take samples right up to the curb of your home. Wastewater officials already have the authority to screen the effluent of industry to identify polluters; there’s no reason those samples couldn’t be run for illicit drugs.”). The Office of National Drug Control Policy has tepidly endorsed Dr. Field’s new methods, but has demonstrated interest in community urinalysis. Hagerman, *supra* note 1; *Teaspoon*, *supra* note 7. Indeed, Dr. Field wants to work with law enforcement to test her method’s accuracy. M.J. Stephey, *Becoming a Statistic*, TIME, Sept. 18, 2007, <http://www.time.com/time/health/article/0,8599,1663204,00.html>.

24. Hagerman, *supra* note 1; Cone, *supra* note 14 (“You could take this down to a community, a street, even a house . . . [y]ou can do all kinds of stuff with this. It’s sort of unlimited.”).

I. DOES TESTING A RESIDENCE'S WASTEWATER FOR DRUGS CONSTITUTE A SEARCH?

The possible application of community urinalysis techniques to an individual home's wastewater frightens civil libertarians.²⁵ It is also where the Fourth Amendment is most strongly implicated.²⁶

Although the Fourth Amendment protects privacy and dignitary interests against arbitrary and invasive acts by the government,²⁷ it only proscribes unreasonable searches and seizures.²⁸ Thus, two fundamental questions must be asked in any Fourth Amendment inquiry: (1) did a search take place; and (2) if a search took place, was it reasonable?²⁹ For government conduct to constitute a search, a person must demonstrate both a subjective expectation of privacy in the privacy interest invaded and an objective expectation of privacy in that interest (i.e., society as a whole recognizes the subjective expectation as reasonable).³⁰ The

25. Monitoring of individual residences could occur in one of three ways. First, if a home's sewer lateral ties into the sewer main at a manhole, the design used in some municipalities, police could enter the manhole and sample the home's wastewater before it is commingled in the sewer main. *See, e.g.,* ROSEVILLE, CAL., MAR. 2007 DESIGN STANDARDS, 10, available at <http://www.roseville.ca.us/civica/filebank/blobdload.asp?BlobID=2382> (last visited Mar. 1, 2009) ("Properties with services located at the end of cul-de-sacs shall enter a manhole."); PEARLAND, TEX., SANITARY SEWER DESIGN CRITERIA, Ch. 4, 7, available at http://www.ci.pearland.tx.us/index.asp?Type=B_BASIC&SEC={11CB5ECE-12DC-4B27-9114-EFA3C8D5DF35} (last visited Mar. 1, 2009) ("Service leads for single-family developments should connect to the manhole whenever practical."); WEST SACRAMENTO, CAL., STANDARD SPECIFICATIONS AND DETAILS, § 5, 57, available at <http://cityofwestsacramento.org/civica/filebank/blobdload.asp?BlobID=2913> (last visited Mar. 1, 2009) [hereinafter STANDARD SPECIFICATIONS] ("Laterals shall connect to the main at manholes whenever possible."). Second, a municipality could send a small robot into a sewer line to collect a sample. Third, each sewer lateral could be connected to a device that tests each flow of wastewater remotely, continuously, and in real time. This scenario is more futuristic, but inventors have already patented automated sampling devices and portable, real-time drug testers. *See* U.S. Patent No. 4941360 (filed June 14, 1989) (describing device that automatically obtains samples from a sewer pipe in order to test for the "presence of controlled substances in a non-intrusive manner"); U.S. Patent No. 5882931 (filed July 14, 1997) (describing device attaching to standard urinal that performs real-time urinalysis on urine disposed of in the urinal and transmits results to a remote facility). As municipalities retrofit old sewer laterals or approve construction of sewer laterals for new homes, they could attach these devices to monitor the water for narcotics. *See, e.g.,* City of Berkeley, Cal., Sewer Lateral Information – City of Berkeley, Cal., <http://209.232.44.21/ContentDisplay.aspx?id=8156> (last visited Mar. 1, 2009) (discussing Berkeley, California's sewer lateral retrofit program).

26. *Payton v. New York*, 445 U.S. 573, 590 (1980) (stating that the Fourth Amendment draws "a firm line at the entrance to the house").

27. *Camara v. Mun. Court*, 387 U.S. 523, 528 (1967).

28. *Skinner v. Ry. Labor Executives' Ass'n*, 489 U.S. 602, 618 (1989).

29. *Riverdale Mills Corp. v. Pimpare*, 392 F.3d 55, 63 (1st Cir. 2004).

30. *Katz v. United States*, 389 U.S. 347, 361 (1967) (Harlan, J., concurring).

This test is given because the Fourth Amendment does not confer a general expectation of privacy. *Id.* at 350 (majority). Recent cases emphasize the objective element of this test. *Hudson v. Palmer*, 468 U.S. 517, 525 n.7 (1984). Except for a "few specifically established

key issue in determining whether wastewater testing constitutes a search is thus whether a homeowner can have a reasonable expectation of privacy in the home's wastewater.

Industrial wastewater is often tested to ensure compliance with federal, state, and local environmental regulations. The First Circuit, in *Riverdale Mills Corp. v. Pimpare*, established the seminal precedent holding that these tests do not constitute searches.³¹ *Riverdale Mills* held a state permit allowing it to discharge its wastewater into a municipal sewer system after treating it for excess acidity.³² After exiting the firm's internal treatment system, and 300 feet before entering the public sewer, the wastewater flowed through a manhole located on a paved street adjacent to the firm's mill building.³³ Acting on an anonymous tip, EPA took samples from the manhole, which revealed violations of the Clean Water Act, without obtaining a warrant.³⁴

The court held that EPA's samples were not a search and thus did not violate *Riverdale Mills*'s Fourth Amendment rights.³⁵ It pointed to several factors for this conclusion, including the commercial setting and the manhole's presence in an area more akin to an open field than curtilage.³⁶ The manhole cover conferred no expectation of privacy because manholes are intended to provide access rather than keep people away.³⁷ The controlling fact, however, was that the wastewater was "irretrievably" flowing into the public sewer located 300 feet away.³⁸ Because any member of the public could sample the wastewater once it entered the public sewer, the wastewater at the manhole was similar to trash left on the curb for pickup—the owner has no reasonable expectation of privacy.³⁹ Although it is fundamentally harder to sample wastewater than to rummage through garbage, the trash analogy still controlled because the wastewater would assuredly enter the public sewer.⁴⁰ *Riverdale Mills* thus abandoned its expectation of privacy in the wastewater by allowing it to flow into an area where it is exposed to the public.⁴¹

and well-defined exceptions," searches are "per se unreasonable" unless the government obtains a warrant. *California v. Acevedo*, 500 U.S. 565, 580 (1991); *Payton*, 445 U.S. at 586.

31. *Riverdale*, 392 F.3d at 55. An Illinois case, *People v. Electronic Plating Co.*, addressed this issue seven years before *Riverdale*, finding no expectation of privacy in wastewater because its connection to the public sewer system was pursuant to a permit, implicating ordinances that authorized the testing of industrial discharges. 683 N.E.2d 465, 469–70 (Ill. App. Ct. 1997). *Riverdale* can be considered the seminal precedent, however, because the other cases to address the issue found its analysis persuasive.

32. *Riverdale*, 392 F.3d at 56–57.

33. *Id.* at 57. The street was on *Riverdale Mills*' property. *Id.*

34. *Id.* at 57–59.

35. *Id.* at 65.

36. *Id.* at 64. Curtilage is the land immediately surrounding and associated with the home. *Oliver v. United States*, 466 U.S. 170, 180 (1984).

37. *Riverdale*, 392 F.3d at 65.

38. *Id.* at 64 (emphasis omitted).

39. *Id.*

40. *Id.* The court rejected *Riverdale*'s argument that a reasonable expectation of privacy exists until the point that its wastewater can no longer be differentiated from other

Two other cases have found this analysis persuasive. The Colorado district court in *United States v. Hajduk* agreed with *Riverdale's* basic holding,⁴² but concluded that samples taken from a sample box located on Luxury Wheels, Inc.'s premises constituted a search.⁴³ Unlike the manhole in *Riverdale*, where the wastewater was flowing irretrievably toward the public sewer, Luxury Wheels could physically prevent the water flowing through the sample box from entering the public sewer.⁴⁴ *Hajduk* thus entrenched *Riverdale's* rule that the reasonableness of a privacy expectation in wastewater turns on whether the sample is taken at a point where the water can be prevented from entering the public sewer.⁴⁵

Another court added to *Riverdale's* analysis by examining the actual location of the wastewater monitoring.⁴⁶ In *United States v. Spain*, the EPA placed monitoring devices at the precise location where Crown Chemical, Inc.'s sewer lines flowed into the public sewer system.⁴⁷ In holding that this monitoring did not constitute a search, the court relied on *Riverdale's* rationale, but pointed out that "the facts of this case are even more compelling . . . because the EPA tested Crown's wastewater at the exact point where that wastewater became public property."⁴⁸

Importantly, all three of these cases declined to establish a per se rule that no privacy interest is possible in wastewater.⁴⁹ Nevertheless, one might plausibly extend this line of cases and argue that no reasonable expectation of privacy exists in residential wastewater. After exiting the home, the homeowner typically has no ability to stop the water from irretrievably flowing into the sewer main,⁵⁰ the

sewage flows. *Id.* (citing the fact that the firm had no cut-off valve at the manhole, giving it no way to stop the wastewater's irretrievable flow).

41. *Id.* at 64.

42. *United States v. Hajduk*, 396 F. Supp. 2d 1216, 1226 (D. Colo. 2005). *Hajduk* also involved samples taken from a manhole without a warrant. *Id.* at 1224. Because, like *Riverdale*, the waters in the manhole were "indisputably flowing into the public sewer system," the court held that those samples did not constitute a search. *Id.* at 1226.

43. *Id.* at 1227.

44. *Id.*

45. *Id.* In dicta, the court rejected an argument that the samples were valid under the open fields doctrine. *Id.* at 1235–36. The removal of the samples involved physical contact, going beyond the mere visual inspection that typically characterizes an open fields search. *Id.*

46. *United States v. Spain*, 515 F. Supp. 2d 860, 865–66 (N.D. Ill. 2007).

47. *Id.* at 863.

48. *Id.* at 868.

49. *Riverdale Mills Corp. v. Pimpare*, 392 F.3d 55, 63 (1st Cir. 2004); *Spain*, 515 F. Supp. 2d at 868 n.7 (noting that "situations may exist in which wastewater is entitled to constitutional protection"). See *Hajduk*, 396 F. Supp. 2d at 1227 (finding, as discussed *supra*, a reasonable expectation of privacy in wastewaters at a sample box). But see *People v. Elec. Plating Co.*, 683 N.E.2d 465, 470 (Ill. App. Ct. 1997) ("[O]nce [Electronic Plating Company's] pipe was connected to the District's public sewer system, any expectation of privacy in the wastewater discharge contained in that pipe became objectively unreasonable. The wastewaters flushed into the pipe became a part of the public sewer system.").

50. See, e.g., COEUR D'ALENE, IDAHO, STANDARD SEWER SERVICE LINES, SS-3, available at <http://www.cdaid.org/mod/userpage/images/SS-3.pdf> [hereinafter COEUR

controlling fact in *Riverdale* and *Hajduk*.⁵¹ By sending the wastewater to a public sewer main, the homeowner has publicly exposed the wastewater and lost any reasonable expectation of privacy.

The *Riverdale* line of cases is, however, potentially distinguishable on three important grounds.⁵² First, they involved commercial and industrial facilities, areas that traditionally receive significantly less protection than homes.⁵³ Second, commercial entities that discharge into sewer systems are subject to special permits and ordinances,⁵⁴ which is generally not true in the case of residential users.⁵⁵ Third, the government usually monitors industrial wastewaters with special monitoring manholes,⁵⁶ a level of regulation not present for residential wastewaters.⁵⁷ *Riverdale* Mills and other heavily monitored entities thus could not harbor a strong expectation of privacy in their discharges. Conversely, the lack of close regulation of residential wastewater potentially heightens the expectation of privacy that a homeowner could reasonably hold. These three issues make any extension of *Riverdale* into residential wastewater problematic.

Four other doctrines potentially impact whether wastewater testing of a home constitutes a search. First, Fourth Amendment jurisprudence does not prohibit the warrantless search of trash put out on a curb. An analogy can be drawn between wastewater and the cases dealing with garbage-pulls. Second, the Fourth Amendment does not recognize a privacy interest when a person conveys or transfers information to a third party. Thus, the precise point where the homeowner conveys the wastewater to the sewer company must be determined because it is at this point that the homeowner loses all privacy expectations in the wastewater. Third, the use of sophisticated technology potentially implicates *Kyllo v. United States* and other cases governing police use of advanced technology unavailable to the general public. Finally, community urinalysis resembles traditional urine tests, which constitute a search in certain settings.

A. Garbage-Pulls

Riverdale's holding relied heavily on an analogy drawn between wastewater and the trash-pull at issue in *California v. Greenwood*.⁵⁸ In

D'ALENE, IDAHO] (showing a typical lateral design with no device to stop the lateral's flow between the home and the sewer main).

51. *Riverdale*, 392 F.3d at 64; *Hajduk*, 396 F. Supp. 2d at 1227.

52. Because all three cases decline to establish a per se rule in this realm, it may be possible to distinguish future cases. See cases cited *supra* note 49.

53. This fact was cited as potentially important by *Riverdale* itself. 392 F.3d at 64; see also *Dow Chemical Co. v. United States*, 476 U.S. 227, 237–38 (1986).

54. *Riverdale*, 392 F.3d at 56–57; *Hajduk*, 396 F. Supp. 2d at 1222.

55. See, e.g., ENCINITAS, CAL., CODE § 18.24.050 (2002); PORTLAND, OR., CODE § 17.34.070(A) (1998) (requiring “significant industrial users” to obtain a discharge permit).

56. *Riverdale*, 392 F.3d at 57; *Hajduk*, 396 F. Supp. 2d at 1227.

57. Monitoring manholes are not typically used for residential sewers. See, e.g., COEUR D'ALENE, IDAHO, *supra* note 50 (showing a residential sewer design with no monitoring manhole present).

58. *Riverdale*, 392 F.3d at 64 (“[T]he trash analogy controls even if it is not exact.”).

Greenwood, the Supreme Court held that the Fourth Amendment does not prohibit the warrantless search of trash placed on a curb for collection.⁵⁹ No reasonable expectation of privacy attached to *Greenwood*'s garbage because it was exposed to the public: his garbage was accessible to animals, children, snoops, or any other person.⁶⁰ Moreover, *Greenwood* intended to convey the garbage to a third party, the trash collector, who could have rummaged through the trash.⁶¹ Because *Greenwood* placed the trash in an area susceptible to public inspection for the purpose of having a third party remove it, the police could search the trash without a warrant.⁶²

Courts quickly pointed out that *Greenwood* created no per se rules either allowing or prohibiting warrantless searches of garbage.⁶³ The proper focus remains whether the garbage is readily accessible to the public.⁶⁴ Some courts hold that if the trash is located where sanitary workers routinely remove it on the day designated for removal, it is exposed to the public and no reasonable expectation of privacy can attach, even if the trash is within a home's curtilage.⁶⁵

Some garbage is disposed of in situations that completely eliminate any expectation of privacy. No reasonable expectation of privacy attaches to garbage disposed of in a communal garbage container (such as an apartment complex's dumpster).⁶⁶ Trash disposed of in commercial dumpsters retains privacy expectations only if commercial proprietors take affirmative steps to bar the public

59. *California v. Greenwood*, 486 U.S. 35, 37 (1988). In *Greenwood*, the police asked the neighborhood trash collector to pick up *Greenwood*'s trash bags and turn them over to the police, who searched the trash and found evidence of drug use. *Id.* at 37–38. The opaque plastic bags were taken from the curb in front of his home. *Id.*

60. *Id.* at 40.

61. *Id.*

62. *Id.* at 40–41.

63. *E.g.*, *United States v. Segura-Baltazar*, 448 F.3d 1281, 1289 (11th Cir. 2006) (noting that no bright-line rule can fit all trash search cases because the inquiries are highly fact intensive); *United States v. 987 Fisher Rd.*, 719 F. Supp. 1396, 1403 n.5 (E.D. Mich. 1989); *Litchfield v. State*, 824 N.E.2d 356, 363 (Ind. 2005).

64. *United States v. Hedrick*, 922 F.2d 396, 400 (7th Cir. 1991). An expectation of privacy cannot be defeated solely by the intent to convey the garbage to the garbage collector because *Greenwood* did not turn exclusively on this point. *Id.* at 399. A contrary conclusion essentially allows police to inspect garbage placed next to a garage or house without any warrant or probable cause. *Id.*

65. *Segura-Baltazar*, 448 F.3d at 1287; *United States v. Moss*, 175 F. Supp. 2d 1067, 1070–71 (M.D. Tenn. 2001) (finding that trash at a home's back door was publicly exposed when the door was the designated location for collection and when the trash was placed at the door at the designated collection time).

66. *United States v. Michaels*, 726 F.2d 1307, 1312–13 (7th Cir. 1984) (holding that no reasonable expectation of privacy attached to trash in an apartment's communal trash bin because the bin was located in a wholly open area accessible to the public, fully visible, unlocked, unfenced, and unrestricted in use by any signs); *Danai v. Canal Square Assocs.*, 862 A.2d 395, 402–03 (D.C. 2004) (holding that a person who places trash in a locked community trash room over which he has no control exposed the trash sufficiently to defeat a privacy expectation; the fact that the room was locked did not, by itself, support a privacy expectation).

from the dumpster.⁶⁷ Courts are split about whether privacy expectations become reasonable when ordinances prohibit garbage-picking or interference with trash containers.⁶⁸

Many state courts reach *Greenwood's* result as a matter of state constitutional law.⁶⁹ A few states, however, restrict trash-pulls. Michigan and Alaska use a four-factor test to decide whether a trash search requires a warrant.⁷⁰ Indiana requires reasonable suspicion of criminal activity before police can conduct a trash-pull and also requires the police to remove the garbage in the same manner as the collector.⁷¹ Vermont and New Jersey require a warrant to conduct a trash-pull, adopting arguments from Justice Brennan's *Greenwood* dissent.⁷²

Riverdale's argument, analogizing wastewater to trash, is not far-fetched. A home's resident disposes of wastewater in the same way as trash—by sending it outside the home and conveying it to a third party (typically a municipal sewer

67. Compare *Commonwealth v. Krisco Corp.*, 653 N.E.2d 579, 584 (Mass. 1995) (finding a reasonable expectation of privacy in a dumpster intended for use by only one business, where the contents were not visible to passersby and where the dumpster was fenced) with *State v. Yakes*, 595 N.W.2d 108, 109–11 (Wis. Ct. App. 1999) (finding that no reasonable expectation of privacy attached to a dumpster when the dumpster was not fenced, had no gate controlled access, and a disposal firm regularly entered the area to empty the dumpster). Privacy expectations in this context are lower because the degree of public access in commercial locations is greater. *Krisco Corp.*, 653 N.E.2d at 583–84.

68. *Rikard v. State*, 123 S.W.3d 114, 120–21 (Ark. 2003) (holding that city ordinances against garbage rummaging were not created to give citizens an expectation of privacy in their garbage); *State v. Hempele*, 576 A.2d 793, 808 (N.J. 1990) (holding that regulations against garbage picking strengthen the presumption that state constitutional protections should apply because regulations are likely to increase people's expectation that their garbage will remain private; the relevant point is the ordinance's effect on people's perception of privacy in garbage, not the ordinance's purpose).

69. See generally Kimberly J. Winbush, Annotation, *Searches and Seizures: Reasonable Expectation of Privacy in Contents of Garbage or Trash Receptacle*, 62 A.L.R. 5th 1 (1998).

70. *United States v. 987 Fisher Rd.*, 719 F. Supp. 1396, 1406 (E.D. Mich. 1989); *State v. Beltz*, 160 P.3d 154, 159 (Alaska Ct. App. 2007). These factors include where the trash was located, whether the relevant dwelling is a multiple or a single unit, who removed the trash, and where the search of the trash took place. *987 Fisher Rd.*, 719 F. Supp. at 1406; *Beltz*, 160 P.3d at 159.

71. *Litchfield v. State*, 824 N.E.2d 356, 363–64 (Ind. 2005). Indiana chose the reasonable suspicion standard because it wanted to prevent police from indiscriminately searching through trash. *Id.* at 357, 363.

72. *Hempele*, 576 A.2d at 810, 813; *State v. Morris*, 680 A.2d 90, 92–93 (Vt. 1996). Scrutiny of another person's trash is contrary to notions of civilized behavior, and even more troubling when done without cause by the police. *Morris*, 680 A.2d at 94. The fact that garbage left for collection entails privacy risks from children or snoops does not allow the government to be unconstrained in adding to those risks, especially considering people expect their garbage to be commingled at the landfill without police interception and systematic examination. *Id.* at 96, 98; see also *Hempele*, 576 A.2d at 805. The *Hempele* court also argued that a trash bag's accessibility to outsiders is not dispositive because a person can have a privacy interest in objects or areas that are not completely invulnerable to view by others. 576 A.2d at 804. If this were not true, only objects under lock and key would retain any privacy protection, a clearly incorrect result. *Id.*

company) for disposal. Because the homeowner disposes of wastewater in a manner that is functionally identical to that of trash, the resident assumes the risk of the wastewater being searched. As such, the homeowner may relinquish any privacy interest in the wastewater.

The analogy between wastewater and trash, however, is not persuasive for three reasons. First, *Greenwood* and the trash cases depend heavily, if not decisively, on the degree of public access to the trash.⁷³ But residential wastewater does not have the same degree of public access or exposure as either commercial wastewater⁷⁴ or garbage, fundamentally weakening any link between residential wastewater and trash.

Residential sewer laterals connect with the public sewer main in one of two ways: at a manhole (an open system),⁷⁵ or entirely underground (a closed system).⁷⁶ If the sewer lateral is part of a closed system, there is no public access point⁷⁷ to the wastewater prior to entering the sewer main. As such, there is no location analogous to the collection point for garbage. A closed system's wastewater is thus inaccessible to the public, undermining the key rationale used to

73. *United States v. Comeaux*, 955 F.2d 586, 589 (8th Cir. 1992). The cases turn on public accessibility for two reasons. First, *Greenwood* rejected any abandonment rationale as a matter of federal law. *California v. Greenwood*, 486 U.S. 35, 49 n.2 (1988) (Brennan, J., dissenting) ("Of 11 Federal Court of Appeals cases cited by the court . . . 7 rely entirely or almost entirely on an abandonment theory that . . . the Court has discredited . . ."); *see also* *State v. Sampson*, 765 A.2d 629, 634 (Md. 2001) (noting that the trash cases are "based less on the property concept of abandonment" than on the trash's public accessibility). Second, some cases reject the argument that merely intending to convey the garbage to the trash collector is enough to defeat an expectation of privacy. *United States v. Hedrick*, 922 F.2d 396, 399 (7th Cir. 1991) ("The *Greenwood* Court did not base its decision solely upon the conveyance of the garbage to the collector.").

74. The commercial wastewater at issue in *Riverdale* and its progeny flowed through many different manholes and had multiple points of access, a factor that further weakens the link between residential and commercial wastewater. *See Riverdale Mills Corp. v. Pimpare*, 392 F.3d 55, 57 (1st Cir. 2004); *United States v. Hajduk*, 396 F. Supp. 2d 1216, 1222–23 (D. Colo. 2005).

75. *See* sources cited *supra* note 25. The open and closed system labels are not actual terms and are used only for ease of reference.

76. *See, e.g.,* COEUR D'ALENE, IDAHO, *supra* note 50; RALEIGH, N.C., TYPICAL SANITARY SEWER LATERAL CONNECTION, available at http://www.raleighnc.gov/portal/server.pt/gateway/PTARGS_0_2_104840_0_0_18/S-30.pdf (showing fill around the lateral's connection to the main). Arguably, the distinction between open and closed systems is too fine to have any significant impact. However, the trash cases also turn on differences in public accessibility, such as in the case of communal and commercial dumpsters. *See* discussion *supra* notes 66–67.

77. Two cases have found that the open fields doctrine does not allow the police to excavate the open field in search of an object because there is a reasonable expectation of privacy in both buried items and the soil covering them. *Husband v. Bryan*, 946 F.2d 27, 29 (5th Cir. 1991); *Reeves Bros., Inc. v. EPA*, 956 F. Supp. 665, 670 (W.D. Va. 1995). As a result, police could not use the open fields doctrine to excavate a homeowner's sewer lateral. Regardless of the legalities, it is highly unlikely that police will dig up a closed system's sewer lateral and sever the pipe to take a sample. However, *Husband* and *Reeves Bros.* might not protect against a robot entering the sewer line to take a sample.

reject a reasonable expectation of privacy in trash. As a result, there is a strong case that the trash analogy does not apply at all to closed systems.⁷⁸

In an open system, the laterals connect at a manhole, arguably furnishing a public access point⁷⁹ analogous to the area where garbage is collected.⁸⁰ The wastewater's public exposure at the manhole, however, is much less significant than trash's public exposure at its collection point. A person is much less likely to "rummage" through potentially toxic wastewater than he is to rummage through garbage.⁸¹ Municipal ordinances often forbid the public from opening and entering manholes.⁸² As a result, the public will not likely access or view the wastewater in an open system—common-sense touchstones of public exposure.⁸³

Wastewater is not publicly exposed in the same way as trash even under the other conceptions of public exposure that some courts have articulated. The rule that trash is publicly exposed simply by being present at the location where sanitary workers routinely remove it on the day of removal⁸⁴ does not transfer well

78. Searches of closed systems become an issue only if police are eventually able to use remote devices to collect and/or test the wastewater. *See* discussion *supra* note 25.

79. *Riverdale*, 392 F.3d at 65 (“[A] manhole cover is normally intended less to keep people out than to provide them access.”).

80. The manhole should be regarded as the “designated collection point” for the wastewater because this is the exact point where the water enters the public domain, similar to the designated point for garbage being the exact point where the garbage collector picks up the trash, introducing it into the public domain.

81. *Greenwood* relies on the fact that “[i]t is common knowledge that plastic garbage bags left on or at the side of a public street are readily accessible to animals, children, scavengers, snoops, and any other member of the public.” 486 U.S. 35, 40 (1988) (majority). There is no analogous common knowledge that wastewater in manholes is readily accessible to any member of the public for any purpose, much less a drug test with a sophisticated device. Moreover, if the probability of trash rummaging described by *Greenwood* is low, the probability of similar rummaging through wastewater is nearly infinitesimal. This is especially true considering that the utility that scavengers and children can derive from trash rummaging is not present in wastewater rummaging. *But see* *United States v. Scott*, 975 F.2d 927, 930 (1st Cir. 1992) (rejecting an expectation of privacy in shredded documents found in trash). *Scott* rejected a privacy expectation in the shredded documents even though the risk to the privacy interest was *de minimis*. *Id.* (“At most, appellant's actions made it likely that most third parties would decline to reconstitute the shredded remnants into a legible whole. The Fourth Amendment, however, does not protect appellant when a third party expends the effort and expense to solve the jigsaw puzzle created by shredding.”). Similar to *Scott*, a homeowner might assume the *de minimis* risk of someone rummaging through wastewater.

82. *See, e.g.,* MEMPHIS, TENN., SEWER USE ORDINANCE § 33-126(c) (2005). However, courts are split on the applicability of ordinances against garbage-picking, possibly lessening the persuasive value of this argument. *See* sources and discussion *supra* note 68.

83. *See* *United States v. Hedrick*, 922 F.2d 396, 400 (7th Cir. 1991) (“[G]arbage placed where it is not only accessible to the public but likely to be viewed by the public is ‘knowingly exposed’ to the public . . .”).

84. *See* sources cited and discussion *supra* note 65.

to wastewater.⁸⁵ This conception of public exposure relies on the fact that a person will inevitably handle garbage in its removal, giving the collector an opportunity to rummage through the trash.⁸⁶ In contrast, wastewater automatically flows into the sewer system without any mandatory human contact,⁸⁷ strongly undercutting this test's applicability.

Other cases emphasize the absence of physical barriers to garbage's accessibility in holding that the trash is publicly exposed,⁸⁸ but this test for public exposure also does not work well with wastewater. Unlike trash, wastewater has inherent physical barriers to its access because it is contained in a pipe that is buried at least three feet underground.⁸⁹ At least superficially, the trash cases appear to lack these physical barriers, suggesting that wastewater is not publicly exposed under this view.⁹⁰

Second, even if the wastewater is physically exposed to the public, its chemical composition may not be exposed to the public because the general public does not have the technology necessary to derive that information.⁹¹ In contrast,

85. Under this rule, any wastewater present in the sewer lateral, the location where wastewater is "removed" from the home, has no reasonable expectation of privacy whether or not the water is actually publicly accessible.

86. *United States v. Moss*, 175 F. Supp. 2d 1067, 1071 (M.D. Tenn. 2001) ("At the designated time for collection, it is expected that a third party will access the designated place for collection and take possession of the trash for removal from the resident's property"); *State v. Neanover*, 812 N.E.2d 127, 129 (Ind. Ct. App. 2004) ("Garbage is unique in that, in most instances, a person places her garbage in a specific, designated location for the express purpose of having someone else take it away."). This is true even if the trash is in a dumpster and collected by the garbage truck because the trash collector always has the possibility of sifting through the container's garbage.

87. In a closed system, this type of human involvement is impossible because the flows are entirely underground and away from all possible human contact. *See* sources cited *supra* note 76.

88. *E.g., Hedrick*, 922 F.2d at 400 ("the absence of a fence or any other barrier indicates that the garbage was knowingly exposed to the public."); *see also Commonwealth v. Krisco Corp.*, 653 N.E.2d 579, 584 (Mass. 1995). However, *Krisco Corp.* involves commercial trash and, as such, may not be as persuasive in a residential setting.

89. *See COEUR D'ALENE, IDAHO, supra* note 50 (showing a typical residential sewer design with laterals buried five feet underground). Open systems are an exception because the wastewater can be accessed in a manhole. *See* sources cited *supra* note 25.

90. On the other hand, regulations require the dirt and the pipe, providing little evidence that the homeowner intended these barriers to eliminate wastewater's public exposure in the same way that a fence around a garbage can evidences this intent. This point is undermined, however, by the fact that wastewater has the physical barriers to begin with, unlike garbage. The presence of the barriers might be enough, without the homeowner's specific intent, to defeat a claim that the wastewater is publicly accessible.

91. *Cf. United States v. Kim*, 415 F. Supp. 1252, 1256 (D. Haw. 1976) ("If . . . agents . . . feel the need for telescopic surveillance, they may apply for a warrant; otherwise, they have no right to peer into people's windows with special equipment not generally in use."); *State v. Barnes*, 390 So. 2d 1243, 1244 (Fla. Dist. Ct. App. 1980) (the public in question must be "the ordinary run of people, not those who happen to possess powerful and sophisticated devices."). Determining whether wastewater contains narcotics requires sophisticated chemical analysis, such as Dr. Field's new methods.

simple visual observation of trash reveals the relevant facts at issue in the garbage cases.⁹² The fact that the public cannot derive the same information as the police from wastewater undermines the contention that the wastewater is fully exposed to the public.⁹³

Third, community urinalysis could one day be conducted continuously and remotely, unlike trash-pulls.⁹⁴ A court could use this factor to distinguish community urinalysis from trash-pulls and deem wastewater monitoring a search to prevent the severe intrusion that continuous monitoring entails.⁹⁵ The intrusion caused by continuous wastewater monitoring is similar to the intrusiveness of continuous video monitoring. The severe intrusion of the latter prompted one court to distinguish it from a single overhead flight.⁹⁶ Admittedly, this argument may only invalidate continuous wastewater monitoring and not community urinalysis as a technological class.

In state courts, the trash analogy's applicability to wastewater will depend on the state's garbage-pull jurisprudence. If wastewater is analogous to trash like *Riverdale* asserts, states that require reasonable suspicion⁹⁷ or probable cause⁹⁸ for a trash-pull would probably extend these rules to wastewater monitoring. Even if a state currently upholds warrantless trash-pulls, however, the state could opt to deviate from the trash result in the case of residential wastewater testing for any of the reasons discussed above.

In practice, any attempt to distinguish wastewater testing from trash-pulls faces the simple hurdle that *Riverdale* has already endorsed this comparison.⁹⁹ The three arguments discussed above, however, undermine the trash analogy enough to defeat its application to wastewater, suggesting that wastewater monitoring is a search. But there is ample doctrinal room for the contrary conclusion reached by

92. Most trash cases involve searching for direct evidence of narcotics production or distribution. *See, e.g.*, *United States v. Comeaux*, 955 F.2d 586, 588 (8th Cir. 1992) (cocaine wrappers and chemicals); *United States v. Kramer*, 711 F.2d 789, 791 (7th Cir. 1983) (records of marijuana sales).

93. This argument holds only as long as the public does not have access to the necessary technology. It breaks down should the technology become widely available to the public. The relevant reasonable expectation of privacy thus attaches only to the wastewater's molecular composition, but there is no authority directly supporting the bifurcation of privacy expectations in this manner.

94. *See* discussion *supra* note 25. Continuous monitoring of trash for an indefinite period is highly unlikely because of its prohibitive cost, and remote monitoring of garbage is probably not technologically feasible.

95. *See United States v. Hibbitt*, 208 F. Supp. 2d 1026, 1040 (D. Alaska 2000) (noting that technology is "quickly outstripping . . . Fourth Amendment jurisprudence").

96. *See United States v. Cuevas-Sanchez*, 821 F.2d 248, 250–51 (5th Cir. 1987) (distinguishing continuous television monitoring from aerial flyovers on the basis that the former entails a much greater intrusion).

97. *See* sources cited *supra* note 71 and accompanying text.

98. *See* sources cited *supra* note 72 and accompanying text. The arguments from *Greenwood's* dissent arguably apply with greater force in the wastewater context than with garbage. *See id.*

99. *Riverdale Mills Corp. v. Pimpare*, 392 F.3d 55, 64 (1st Cir. 2004) ("[T]he trash analogy controls even if it is not exact.").

Riverdale—that wastewater is comparable to trash—making wastewater testing a non-search.

B. Conveyance of the Wastewater to a Third Party

Even if the wastewater is neither publicly exposed nor analogous to a trash-pull, the homeowner, at some point, transfers ownership of the water to the sewer company for final disposal. Determining the exact point of this conveyance is critical because at this point, the homeowner relinquishes his expectation of privacy in the wastewater.

An individual has no standing to challenge the search or seizure of property he has no possessory interest in.¹⁰⁰ Additionally, if a person voluntarily conveys information to a third party, the government can obtain this information from the third party without violating the conveying party's privacy interests.¹⁰¹ *United States v. Miller* applied this principle in holding that a bank customer has no reasonable expectation of privacy in records he voluntarily conveys to the bank, such as deposit slips.¹⁰²

Miller's basic result is echoed in many different contexts. The Supreme Court upheld the use of pen registers to record outgoing telephone numbers in *Smith v. Maryland* because the telephone user voluntarily conveyed numerical information to the telephone company, exposing the information to the phone company's equipment.¹⁰³ Similarly, a homeowner has no reasonable privacy expectation in his or her home's energy usage records because the homeowner voluntarily conveyed this information to the utility company by merely using the electricity.¹⁰⁴

100. *Rakas v. Illinois*, 439 U.S. 128, 148 (1978) (holding that parties could not challenge the seizure of evidence from a vehicle when they had no possessory interest in either the property or the evidence); *see also Alderman v. United States*, 394 U.S. 165, 174 (1969) ("Fourth Amendment rights are personal rights which, like some other constitutional rights, may not be vicariously asserted."); *see also infra* note 204.

101. *United States v. Jacobsen*, 466 U.S. 109, 117 (1984) ("[W]hen an individual reveals private information to another, he assumes the risk that his confidant will reveal that information to the authorities . . . [o]nce frustration of the original expectation of privacy occurs, the Fourth Amendment does not prohibit governmental use of the now-nonprivate information . . ."). Even if the government obtains the information by violating the third party's privacy interests, the person conveying the information has no standing under *Rakas* to assert the third party's claim.

102. *United States v. Miller*, 425 U.S. 435, 443 (1976) ("The depositor takes the risk, in revealing his affairs to another, that the information will be conveyed by that person to the Government.").

103. *Smith v. Maryland*, 442 U.S. 735, 744 (1979) ("When he used his phone, petitioner voluntarily conveyed numerical information to the telephone company and 'exposed' that information to its equipment in the ordinary course of business. In so doing, petitioner assumed the risk that the company would reveal to police the numbers he dialed.").

104. *United States v. Hamilton*, 434 F. Supp. 2d 974, 980 (D. Or. 2006). The court rejected an argument that electricity use records revealed intimate facts about the home, making the action a search under *Kyllo v. United States. Id.*

Clearly, once wastewater enters a sewer main, it is conveyed to the sewer company and is no longer the homeowner's property.¹⁰⁵ Like the energy usage statistics in *Hamilton*, the homeowner conveys the wastewater and its chemical composition to the sewer company by using the sewer works, losing any reasonable expectation of privacy in both of these items.¹⁰⁶

Whether the wastewater is conveyed prior to entering the sewer main is a tougher question. The above discussion suggests that the wastewater is conveyed only when it reaches sewer works owned by a third party, as in sewer mains,¹⁰⁷ making the question of who owns the sewer lateral important. Generally, the homeowner owns the portion of the lateral underneath his property¹⁰⁸ and often owns the portion of the lateral under the street,¹⁰⁹ suggesting that the water in the lateral is not conveyed.

105. See 11 MCQUILLIN MUN. CORP. § 31.29 (3rd ed.) ("Courts generally regard public sewers and drains as the property of the municipal corporations in which they are built . . . , and no private person has the right to interfere with them."); see also *United States v. Spain*, 515 F. Supp. 2d 860, 863, 868 (N.D. Ill. 2007) ("[T]he EPA was testing . . . [the] wastewater . . . at the point where that substance entered the public sewer system and therefore became public waste subject to disposal by the [sewer company].").

106. The homeowner's loss of his privacy expectation is meaningless, however, because the home's wastewater is commingled with that of other homes once it enters the sewer main.

107. This conception assumes that wastewater's ownership is determined *ipso facto* by the ownership of the pipe that transports the water. Cf. discussion *supra* note 105 and accompanying text. It could be argued, however, that the homeowner abandons his wastewater when he sends it into his home's plumbing, mooted the determination of whether the homeowner conveyed it to the sewer company. See *Nelson v. State*, 286 S.E.2d 504, 505–06 (Ga. App. 1981) (holding that defendant abandoned cocaine by flushing it down the toilet); *Clapp v. State*, 639 S.W.2d 949, 953 (Tex. Crim. App. 1982), *overruled on other grounds by Comer v. State*, 754 S.W.2d 656 (Tex. Crim. App. 1986) (holding that defendant abandoned tinfoil packets by flushing them down the toilet, noting that "most persons have no intention of retrieving things in toilets, especially ones that have just been flushed"). Notably, however, the trash cases generally do not endorse the abandonment rationale in their holdings, weakening abandonment's applicability in the wastewater context. See *supra* note 73.

108. See, e.g., L.A. Dep't of Pub. Works, LA Sewers, <http://www.lacity.org/SAN/lasewers/sewers/roots/rootsfaqx.htm#a1> (last visited Mar. 1, 2009) [hereinafter LA Sewers]; Water Env't Research Found., Uncovering Private Sewer Laterals, <http://www.werf.org/AM/Template.cfm?Section=Progress1&Template=/CM/HTMLDisplay.cfm&ContentID=2704> (last visited Aug. 22, 2009) ("[P]rivate ownership of sewer laterals extends more often to the mainline than to the property line."); but see Ass'n of Bay Area Gov'ts, Learn About the Two Types of Sewers in Your Home, <http://www.sewersmart.org/connection.html> (last visited Mar. 1, 2009) ("In many communities . . . [t]he city or sewer district is responsible for maintaining the lower lateral and the main."); STANDARD SPECIFICATIONS, *supra* note 25, at § 5, 56 ("The usual location of the line separating responsibility of the City and property owner is the back of sidewalk cleanout.").

109. 64 C.J.S. *Mun. Corp.* § 1539 ("It is sometimes, although not always, held that a private drain or sewer constructed by an individual in a public street is his private property, and that he has a right to the exclusive use of it . . ."). See also sources cited and discussion *supra* note 108 (discussing private responsibility for the sewer lateral). A municipality can, however, reserve an exclusive right to construct the portion of the sewer

The fact that the lateral traverses a public street complicates the analysis, however. Generally, the homeowner owns the underlying fee to the street, but it is subject to an easement for the street and utilities.¹¹⁰ This easement, however, probably does not give the third party holding the servient estate any ability to invade the lateral. Holding a servitude does not confer proper authority upon the third party to consent to a search of the lateral underlying the easement,¹¹¹ and, as a practical matter, tort law deters any invasion of the lateral by the third party itself.¹¹² Even if the third party actually owns the street, it still cannot invade the lateral by itself and it may not be able to consent to a search of the lateral.¹¹³ Thus, as long as the lateral is the homeowner's property, the homeowner has not

lateral that lies between the property line and the public sewer, suggesting that this portion of the lateral is not privately owned. 11 MCQUILLIN MUN. CORP. § 31.30 (3rd ed.).

110. 10A MCQUILLIN MUN. CORP. § 30.32 (3rd ed.) (“[T]he established rule of the common law followed in a majority of the states is that the abutting landowner will be held to own the fee in the public way in front of his or her property to the center of it, subject to the public easement, unless the owner has been divested of title, as by an accepted dedication, condemnation, or by other means.”); *see also* LA Sewers, *supra* note 108 (“In almost all cases, the owner of private property holds the underlying fee to the center of the street. The public street is an easement.”).

111. Police can obtain consent from either the individual whose property is searched or from a third party who possesses common authority over the premises. *Illinois v. Rodriguez*, 497 U.S. 177, 181 (1990); *United States v. Matlock*, 415 U.S. 164, 172 n.7 (1974) (noting that the common authority theory “rests . . . on mutual use of the property by persons generally having joint access or control for most purposes,” and that an important factor is whether one party “assumed the risk” of another party consenting to a search). Even if it is conceded that there is common authority with respect to the easement, common authority probably does not exist with respect to the lateral for three reasons. First, the easement's purpose is for the street and public utilities, not private sewer laterals. Second, the holder of the servient estate, generally a municipality, does not have mutual use of the sewer lateral. *See McIntosh v. City of Joplin*, 486 S.W.2d 287, 289 (Mo. Ct. App. 1972) (holding that a city could not “appropriate a private sewer and take it over for public use by merely connecting onto the sewer without the owners’ permission [or without remitting just compensation under the Fifth Amendment].”). Third, the homeowner generally retains full ownership of the pipe even as it traverses the easement. Considering these three factors, it is not reasonable to believe that the homeowner assumed the risk of the servient estate consenting to a search of the lateral.

112. *See* RESTATEMENT (SECOND) OF TORTS § 217 (1965) (“A trespass to chattel may be committed by intentionally . . . (b) using or intermeddling with a chattel in the possession of another) (potentially dissuading the introduction of a sample-gathering robot into the lateral); *id.* at § 226 (“One who intentionally destroys a chattel or so materially alters its physical condition as to change its identity or character is subject to liability for conversion.”) (potentially dissuading any alteration to the lateral necessary to attach a testing device).

113. Cases prohibiting a vehicle's driver from consenting to a search of a passenger's effects may provide a useful analogy. *E.g.*, *Ledda v. State*, 564 A.2d 1125, 1129 (Del. 1989). Clear lines of ownership also exist in this case, suggesting that the street's owner does not have authority to consent to a search of the homeowner's lateral, even though it crosses the street owner's property.

conveyed the wastewater, regardless of the fact that the lateral traverses the street.¹¹⁴

Riverdale, however, suggests that wastewater is conveyed at the point it irretrievably flows into the sewer, regardless of whether this point is on private property or whether the water is in a private sewer.¹¹⁵ In the home context, this rule means that the homeowner conveys his wastewater to the sewer company immediately when it enters the drain or when the toilet is flushed.¹¹⁶ As such, the homeowner can never have a reasonable expectation of privacy in any wastewater.

Riverdale's proposition is flawed for two reasons. First, it splits the ownership of the sewer lateral and the wastewater transported by the lateral,¹¹⁷ a bifurcation that grants the sewer company a de facto easement over the sewer lateral.¹¹⁸ Although such an ownership regime is not impossible, its anomalous nature strongly suggests that the point of conveyance suggested by *Riverdale* is incorrect.¹¹⁹ Second, this result is inconsistent with the trash analogy that *Riverdale* relies upon so heavily. Regardless of how property law treats garbage generally, the trash is not conveyed to the third-party trash collector until the trash collector actually removes the garbage.¹²⁰ Staying consistent with the trash analogy requires

114. If the homeowner does not own the complete lateral, he loses any privacy expectation once the wastewater enters any portion of the lateral that is owned by a third party. See *supra* note 107 and accompanying text.

115. *Riverdale Mills Corp. v. Pimpare*, 392 F.3d 55, 64 (1st Cir. 2004) (“[T]he controlling fact here is that the wastewater at Manhole 1 is *irretrievably* flowing into the public sewer, which is only 300 feet away. The wastewater will inevitably reach Manhole 2, where the public sewer begins, after only a short period of time, and once it reaches that point, any member of the public can take a sample.”).

116. This is because there is no point in typical residential sewer system design where the homeowner can stop the water from flowing into the sewer. See *supra* note 50 and accompanying text; cf. *United States v. Moss*, 175 F. Supp. 2d 1067, 1070–71 (M.D. Tenn. 2001) (finding that trash in a home’s curtilage was sufficiently exposed to the public when the curtilage was the designated collection point and when the trash was placed in the curtilage at the designated time for collection). *Riverdale*’s conception is, however, consistent with cases holding that items flushed down the toilet are abandoned. See discussion and sources cited *supra* note 107.

117. This is the exact reverse of the situation described earlier in which privately owned wastewater flows into publicly owned sewer works. Under this ownership regime, the wastewater is owned by another entity regardless of whether the entity owns the plumbing transporting the water.

118. A de facto easement arises because the sewer company could either consent to police seizure and testing of the wastewater it owns within the homeowner’s lateral or force the homeowner to allow alterations to the lateral to access the wastewater it owns.

119. The fact that sewer companies do not typically own the sewer lateral suggests that they do not recognize an ownership interest in the wastewater until they take delivery of it in the sewer main.

120. Cf. *United States v. 987 Fisher Rd.*, 719 F. Supp. 1396, 1404 (E.D. Mich. 1989) (holding that a homeowner had a reasonable expectation of privacy in garbage bags located against the home’s back wall, in part because the resident “retained control over [the garbage bags] and could have retrieved them or items contained in them”). No case recognizes the argument that the trash is conveyed to the garbage collector merely because the probability of the homeowner retrieving the garbage is very low.

a rule that wastewater is not conveyed to the sewer company until it actually takes delivery of the water, at the sewer main, regardless of how low the probability is that the homeowner will retrieve the water.¹²¹

Even if *Riverdale's* conception of conveyance is rejected and the homeowner does not convey the wastewater until it reaches the sewer main, the homeowner who seeks to keep his wastewater private remains vulnerable on two key fronts. First, a court could hold that a servient estate can consent to police entry into the lateral to seize samples of wastewater.¹²² Second, a sewer company could use its regulatory powers to conduct its own tests of each residence's wastewater for other purposes,¹²³ generating records of the compounds present in a home's wastewater. As with pen registers, banking records, and electrical usage records, the government could access these test results without infringing on any expectation of privacy that the homeowner can assert.

C. Searches Involving Technology and the Home

The advanced technology used by community urinalysis potentially implicates cases governing police use of technology. These cases generally examine two issues: the area searched by the technology and the technology's sophistication.

The 2001 case *Kyllo v. United States* underscores the tension between police use of technology and the sanctity of the home in holding that the use of a thermal imager to measure a home's infrared radiation constituted a search.¹²⁴ Police may not use sense-enhancing technology to obtain any information about a home's interior that they could not have obtained without physical entry into the structure.¹²⁵ All details in a home are intimate details, including its heat levels.¹²⁶ Because any physical invasion of the home, by "even a fraction of an inch," is

121. Even though the probability of a homeowner seeking to retrieve his wastewater is *de minimis*, once these infinitesimal probabilities are recognized in one context, they must be recognized in all contexts to preserve intellectual consistency and disallow the idea from becoming both a shield and a sword. See discussion *supra* note 81 (discussing the *de minimis* probability of rummaging through wastewater).

122. This occurs if the court recognizes the third party's common authority over the lateral. See discussion *supra* note 111.

123. These include identifying possible environmental contaminants or high concentrations of compounds likely to damage sewer infrastructure, such as fats, grease, and oil. See, e.g., L.A. County Dep't of Pub. Works, Protecting Your Sewer System From Fats, Oil, and Grease, <http://dpw.lacounty.gov/smd/SMD/Protectingyoursewersystemfromfats.pdf> (last visited Mar. 1, 2009).

124. *Kyllo v. United States*, 533 U.S. 27, 29–30, 40 (2001). The police used the device from the passenger seat of a squad car. *Id.* at 30.

125. *Id.* at 34. Justice Scalia qualified this broad statement with the phrase "at least where (as here) the technology in question is not in general public use." *Id.* This qualifier has sparked a fierce debate about whether police can peer into a home using technology that is in general public use. See *id.* at 47 (Stevens, J., dissenting).

126. *Id.* at 38 (majority). This is because heat levels can reveal intimate details, such as "at what hour each night the lady of the house takes her daily sauna and bath." *Id.*

unacceptable without a warrant, the warrantless use of the thermal imager was improper.¹²⁷

The Supreme Court's concern about the use of technology in the home also manifests itself in cases involving remote tracking devices (beepers). The Court upheld the use of beepers on vehicles using public thoroughfares,¹²⁸ but *United States v. Karo* requires police to obtain a warrant before using a beeper to reveal an object's presence in or location within a residence.¹²⁹ A beeper cannot reveal surreptitiously any facts about a home that police could not otherwise have known without physical entry.¹³⁰

Kyllo and *Karo* touch community urinalysis in two crucial ways. First, wastewater testing reveals details¹³¹ about the home that police would not have known without physical entry.¹³² Just like the thermal imager in *Kyllo* revealed the marijuana-growing operation,¹³³ wastewater testing can suggest, for example, the presence of a methamphetamine lab, a fact about the home that the police could not have known without physical entry. Because all details in a home are intimate details, this suggests that community urinalysis should be deemed a search.

Second, the technology employed in wastewater testing is not generally used by the public, a factor that influenced the *Kyllo* Court to label thermal imaging a search¹³⁴ and played a significant role in other technology cases. One case, *State v. Barnes*, defined the relevant public as the "ordinary run of people."¹³⁵ The sophisticated testing equipment and procedures developed by Dr. Field are almost certainly not used by ordinary citizens, suggesting that the wastewater's

127. *Id.* at 37. A contrary result leaves a homeowner at the mercy of advancing technology that could discern all activities in the home. *Id.* at 35–36.

128. *United States v. Knotts*, 460 U.S. 276, 282 (1983).

129. *United States v. Karo*, 468 U.S. 705, 718 (1984).

130. *Id.* at 715. The fact that the beeper is less intrusive than a physical search is not relevant. *Id.* A contrary result permits indiscriminate monitoring of property withdrawn from public view, constituting a great threat to privacy interests in the home. *Id.* at 716.

131. These details could consist of both activities taking place within the home and whether people occupying the home have used narcotics.

132. It could be argued that the information obtained by community urinalysis does not constitute a "fact" about the home. *Karo*'s beeper revealed an object's placement and *Kyllo*'s thermal imager revealed the heat levels emanating from the home's lighting. *Karo*, 468 U.S. at 715; *Kyllo*, 533 U.S. at 30. The chemical composition of the home's wastewater may not be a fact about the home because the technology is not operating directly on the home's structure, unlike in *Kyllo* and *Karo*. However, this distinction would probably be rejected because, theoretically, the thermal imager only operated on the thermal radiation reaching the public street and not in the home itself. *Kyllo*, 533 U.S. at 43–44 (Stevens, J., dissenting). Moreover, the facts revealed by the home's wastewater are inextricably tied to the home.

133. *Id.* at 30 (majority).

134. *Id.* at 34.

135. *State v. Barnes*, 390 So. 2d 1243, 1244 (Fla. Dist. Ct. App. 1980). *Kyllo*, however, never addressed this idea.

chemical composition is not publicly exposed and that the use of community urinalysis technology is a search.¹³⁶

There are two problems, however, with applying *Kyllo* and *Karo* to wastewater testing. First, wastewater testing might not involve the same physical invasion of the home as in *Kyllo* and *Karo* because the technology in those two cases effectively peered into the home's physical structure, whereas wastewater monitoring tests substances that homeowners have expelled from the home. Because the technology at issue in this scenario acts only on the wastewater, it may not directly invade the home's structure.¹³⁷ *Kyllo*, however, squarely rejected the argument that thermal imaging only indirectly revealed details about the home,¹³⁸ making devices that indirectly reveal facts about the home a physical invasion.

Second, and more troubling, *Karo* and *Kyllo* might only protect details that, while indicative of drug activity, are innocent by themselves.¹³⁹ On two occasions, *United States v. Place*¹⁴⁰ and *United States v. Jacobsen*,¹⁴¹ the Supreme Court has held that no reasonable expectation of privacy can attach to narcotics. One could plausibly read *Kyllo* and these decisions harmoniously and argue that any device that peers into the home to detect only narcotics,¹⁴² rather than the byproducts of narcotics,¹⁴³ does not constitute a search, even if the device obtains this information by peering into the home. Although the device certainly reveals a fact about the home—the presence of narcotics—the home cannot give a person an

136. This argument breaks down if community urinalysis techniques ever become generally used by the public. See *United States v. Vela*, 486 F. Supp. 2d 587, 590 (W.D. Tex. 2005) (citing the general availability of night vision goggles as a reason *Kyllo* does not prohibit their use).

137. Put another way, unlike thermal imaging, an inference is required by the officer to determine that drug activity is taking place in the home. Determining this fact from the testing of wastewater is not a physical invasion in the same way as installing a hidden camera in the home would be.

138. *Kyllo*, 533 U.S. at 35 n.2; see also *United States v. Hamilton*, 434 F. Supp. 2d 974, 983 n.6 (D. Or. 2006). Justice Stevens argued in his dissent that “the only conclusions . . . reached concerning the interior of the home were at least as indirect as those that might have been inferred from the contents of discarded garbage.” *Kyllo*, 533 U.S. at 44 (Stevens, J., dissenting).

139. *United States v. Karo*, 468 U.S. 705, 709–10 (1984) (ether); *Kyllo*, 533 U.S. at 29–30 (majority) (heat). Police had to use these details to draw an inference that illegal activities were taking place inside the home.

140. 462 U.S. 696, 707 (1983) (dog sniffs) (“[T]he sniff discloses only the presence or absence of narcotics, a contraband item.”).

141. 466 U.S. 109, 123 (1984) (cocaine field test) (“Congress has decided . . . to treat the interest in ‘privately’ possessing cocaine as illegitimate; thus governmental conduct that can reveal whether a substance is cocaine, and no other arguably ‘private’ fact, compromises no legitimate privacy interest.”).

142. The narcotics residues by themselves would reveal the presence of drug activities in the same way as the presence of heat indicated the production of marijuana in *Kyllo* and the presence of ether indicated drug manufacturing in *Karo*.

143. An example of the byproducts of drug activity is the heat from the marijuana-growing lamps in *Kyllo*.

expectation of privacy in the illegal drugs.¹⁴⁴ Furthermore, *Kyllo* only states that a home's heat levels are an intimate detail about the home. It never endorses the idea that marijuana production itself¹⁴⁵ is protected by virtue of it being produced within the home.¹⁴⁶ If this argument is accepted, wastewater testing that detects only narcotics residues might not be a search under *Place* and *Jacobsen*, even though it uses advanced technology to reveal details about a home.

For three reasons, the argument that *Place* and *Jacobsen* allow wastewater monitoring of homes because the monitoring device detects only the narcotics themselves is tenuous. First, it employs a mechanical interpretation of Fourth Amendment jurisprudence, an interpretive method *Kyllo* disfavors.¹⁴⁷ Second, it runs contrary to the sweeping language used in *Kyllo* that *all* details in the home are intimate details and that *any* invasion of the home presumptively requires a warrant.¹⁴⁸ Finally, *Place* and *Jacobsen* involve investigative techniques whose technologies are inherently limited to detecting drugs.¹⁴⁹ Wastewater monitoring is more intrusive than either of these methods because its technology can be programmed to detect legal substances and to alert at any concentration.¹⁵⁰

144. Cf., e.g., *United States v. Brock*, 417 F.3d 692, 697 (7th Cir. 2005) (holding that the use of a narcotics-detection dog to detect narcotics odors emanating from behind a bedroom door in a shared apartment was not a search). A minority of cases reach a contrary result. See *United States v. Thomas*, 757 F.2d 1359, 1367 (2d Cir. 1985) (noting the occupant's "heightened expectation of privacy inside his dwelling"). *Thomas*, however, has been criticized because it "implies that a person has a reasonable expectation that even contraband items hidden in his dwelling place will not be revealed." *United States v. Lingenfelter*, 997 F.2d 632, 638 (9th Cir. 1993) (quoting *Jacobsen*, 466 U.S. at 124 n.24) (pointing out that this conflicts with the Supreme Court's determination that "[n]o legitimate expectation of privacy is impinged by governmental conduct that can 'reveal nothing about noncontraband items.'").

145. This discussion addresses the actual fact of marijuana production, akin to whether the substance in *Jacobsen* is actually cocaine or talcum powder. *Jacobsen*, 466 U.S. at 122. This is distinguished from mere evidence of marijuana production, such as the heat levels in *Kyllo*.

146. See *Kyllo v. United States*, 533 U.S. 27, 34–40 (2001).

147. The mechanical interpretation in this case is that the Fourth Amendment never protects an expectation of privacy in narcotics, even when obtaining this fact involves a physical invasion of the home. *Kyllo* rejects the argument that thermal imaging must be upheld because it detects only heat radiating from a home's external surface. *Id.* at 35. This shows that courts are willing to delve beyond a formulaic interpretation of the Fourth Amendment, at least when a physical invasion of the home is involved.

148. *Id.* at 37; see also *Payton v. New York*, 445 U.S. 573, 590 (1980) (holding that the Fourth Amendment draws "a firm line at the entrance to the house"). Presumably, Justice Scalia could have noted that this language does not alter the *Place* and *Jacobsen* rule that no expectation of privacy could attach to narcotics, whether or not the contraband is present in a home.

149. *United States v. Place*, 462 U.S. 696, 707 (1983) ("[T]he sniff discloses only the presence or absence of narcotics . . ."); *Jacobsen*, 466 U.S. at 122 ("The field test at issue could disclose only one fact previously unknown to the agent—whether or not a suspicious white powder was cocaine. It could tell him nothing more, not even whether the substance was sugar or talcum powder.").

150. See *infra* note 161 and accompanying text. This technology thus does not fall into the same "sui generis" category as dog sniffs. *Place*, 462 U.S. at 707.

Although applying *Kyllo* to community urinalysis is more persuasive for the three reasons discussed above, plenty of doctrinal room exists for a contrary conclusion because a court must ultimately choose between two conflicting, and equally strong, principles.

Even if *Kyllo*'s applicability is cast into doubt, the extraordinarily intrusive nature of community urinalysis technology might furnish an independent ground for a court to deem the technology a search. One case, *United States v. Cuevas-Sanchez*, held that the use of fixed video surveillance of an individual's backyard was a search.¹⁵¹ In that case, federal agents installed a video camera without a warrant on a power pole that overlooked a home's backyard, allowing a continuous record of the backyard's activities.¹⁵² In reaching its conclusion, the court rejected the government's contention that video monitoring was not a search under *California v. Ciraolo*'s upholding of warrantless aerial overflights.¹⁵³ While a person has no reasonable expectation of privacy against the minimal intrusion of a one-time overhead flight, continuous video monitoring that records all activity in an area is not a minimal intrusion.¹⁵⁴ It "[provokes] an immediate negative visceral reaction" that "raises the spectre of the Orwellian state."¹⁵⁵

If community urinalysis technology ever allows for continuous monitoring of wastewater in the same way as continuous video monitoring, a court could make a distinction similar to *Cuevas-Sanchez* and deem continuous wastewater monitoring a search. Continuous wastewater monitoring provokes the same visceral, Orwellian reaction as continuous video surveillance.¹⁵⁶ This logic, however, probably only strikes any devices designed for continual or remote monitoring, not wastewater testing as a class.

The sheer sophistication of community urinalysis technology could also persuade a court to label it a search. One case, *United States v. Hibbitt*, addressed a sophisticated device, the Ion Track Itemiser, and deemed it "closer to a search than a 'non-search.'"¹⁵⁷ This device tests a container¹⁵⁸ for narcotics residue by wiping a paper disk over the container's surface to lift any particles present on that

151. *United States v. Cuevas-Sanchez*, 821 F.2d 248, 251 (5th Cir. 1987).

152. *Id.* at 250.

153. *Id.* The government argued that the video cameras captured activities that were visible to the naked eye in the same way that overflights captured activities visible to the naked eye. *Id.* Effectively, the court carved a razor-thin distinction between continual video monitoring and overhead flights based exclusively on the monitoring's continuous nature.

154. *Id.* at 250–51.

155. *Id.* at 251.

156. This is true because both technologies allow remote and continuous viewing of a home's activities, reveal sensitive, private information about their targets, and can conceivably monitor every home.

157. *United States v. Hibbitt*, 208 F. Supp. 2d 1026, 1039 (D. Alaska 2000). The court considered whether the Itemiser is a search for the purpose of determining whether the device's use exceeded the permissible limits of a *Terry* stop. *Id.* at 1034–35.

158. The device could test any object for narcotics, but it was used in this case for a suitcase. *Id.* at 1030.

surface.¹⁵⁹ Because the disk only lifts particles on the surface where it is wiped, the Itemiser cannot detect whether narcotics are actually present inside the container.¹⁶⁰ It is more intrusive, however, than both a dog sniff and thermal imaging because it searches for drugs on a chemical and microscopic level, revealing details that are much more specific and intimate than just heat levels.¹⁶¹ The implications of machines searching for drugs on a molecular level are “enormous” because the machines risk subjecting many people to unwarranted privacy invasions.¹⁶² *Hibbitt’s* analysis attempted to balance individual rights with the emergent nature of this technology.¹⁶³

Community urinalysis is similar to the Itemiser in a number of respects, suggesting that it is, at the very least, closer to a search than a non-search. The technology can theoretically detect any compound at any concentration, giving police the broad discretion that concerned the *Hibbitt* court.¹⁶⁴ It can reveal non-criminal details and legal activities.¹⁶⁵ Moreover, Dr. Field’s methods test with drugs on a molecular level and are capable of the same extraordinary precision¹⁶⁶

159. *Id.* The Itemiser ionizes the particles present on the disks to identify the presence of narcotics and the specific narcotic present. *Id.*

160. *Id.*

161. *Id.* at 1037. This is true for two reasons. First, the Itemiser can provide information about somebody’s property other than the presence of illegal substances. *Id.* at 1039. The scientific principles underlying the Itemiser can detect any substance, while a dog cannot collect any information other than the presence or absence of narcotics. *Id.* Moreover, any particle can adhere to the disk, not just illegal narcotics, allowing the device to reveal the presence of lawfully prescribed substances. *Id.* at 1038. Second, the Itemiser can be recalibrated or reprogrammed to detect different substances and can be set to alarm at different levels of any given substance, giving police significant discretion in when an alert is triggered. *Id.* at 1039.

162. *Id.* at 1040. Traces of narcotics are prevalent on many objects for entirely innocent reasons. *Id.* at 1040 n.77. This, combined with the device’s extraordinary sensitivity, elevates the risk of “humiliating” searches based on false alerts. *Id.* at 1040.

163. *Id.* The court was concerned that technology “is quickly outstripping . . . Fourth Amendment jurisprudence” and sensitive instruments like the Itemiser pose the risk of eroding privacy protections if their use is not “coupled with practical common sense and careful study of . . . other circumstances.” *Id.*

164. *Id.* at 1039; see also discussion *supra* note 161. Police could program wastewater-testing devices to detect any compound, including legal substances, at any concentration. However, a device that does not allow the police to modify the compounds tested or the concentrations that trigger an alert arguably does not give the agency the type of discretion *Hibbitt* was concerned with. If discretion is analyzed by device, devices that cannot be modified may not trigger *Hibbitt’s* concern, even if the police have an indirect form of discretion by being able to choose among a variety of unalterable devices programmed to test for different substances at different concentrations.

165. Police could theoretically sample wastewater for any compound using any technological device, an argument that attacks wastewater-testing technology in general, not just the specific technology used by Dr. Field. As a result, wastewater monitoring as a class is more intrusive than *Place’s* dog sniff or thermal imaging because it involves chemical and microscopic analysis, just like the Itemiser. *Hibbitt*, 208 F. Supp. 2d at 1039.

166. See discussion *supra* note 13.

as the Itemiser, implicating *Hibbitt's* concern that technology is "quickly outstripping" the Fourth Amendment.¹⁶⁷

Regardless of how compelling the parallel is between community urinalysis and the technology cases, these cases are inapplicable if the wastewater is seized for testing after the homeowner conveys or abandons it.¹⁶⁸ After the homeowner conveys his wastewater, he loses any privacy expectation in the water, even if testing the conveyed water reveals intimate facts about the home.¹⁶⁹ *Kyllo* and the technology cases involve devices that invade the home's boundaries to "seize" the information sought by the government. In contrast, community urinalysis does not constitute a seizure if the government uses the technology to sample and test wastewater that the homeowner does not own.¹⁷⁰ Moreover, the act of testing the wastewater for drugs does not constitute a separate invasion of the homeowner's privacy expectation.¹⁷¹ As a result, the applicability of the technology cases is compromised severely if community urinalysis technology tests wastewater that the homeowner has already conveyed.

Despite this concern, community urinalysis implicates *Kyllo* and the technology cases on a visceral and instinctual level, suggesting that a court should deem wastewater testing of a home a search. Like the trash cases, however, there is enough argumentative ground for a court to reject the applicability of the technology cases to community urinalysis.

D. Urine Tests of Individuals

At its core, community urinalysis technology is designed to detect drugs in wastewater, making it closely related to urine tests of individuals. Courts generally view these urine tests as searches.¹⁷² A rich body of caselaw has addressed this topic in two contexts. First, courts have found the use of urine tests by law enforcement a search, usually under the bodily intrusion doctrine established by *Schmerber v. California*.¹⁷³ Second, courts have examined urine

167. *Hibbitt*, 208 F. Supp. 2d at 1040.

168. *See supra* Part I.B.

169. *Cf.* *United States v. Hamilton*, 434 F. Supp. 2d 974, 983 (D. Or. 2006) (holding that *Kyllo v. United States* did not overrule or undermine the rationale behind *California v. Greenwood's* treatment of garbage-pulls, even though trash-pulls reveal intimate details about a home).

170. *See supra* note 100 and accompanying text.

171. *See* *United States v. Jacobsen*, 466 U.S. 109, 117 (1984) ("Once frustration of the original expectation of privacy occurs, the Fourth Amendment does not prohibit governmental use of the now-nonprivate information . . .").

172. *E.g.*, *Skinner v. Ry. Labor Executives' Ass'n*, 489 U.S. 602, 617 (1989) (finding drug screenings of railroad employees, which were mandated by Federal Railroad Administration regulations to constitute a search); *Storms v. Coughlin*, 600 F. Supp. 1214, 1222 (S.D.N.Y. 1984) (viewing these tests as a "particularly degrading" form of search); *State v. Hanson*, 588 N.W.2d 885, 890-94 (S.D. 1999) (finding drug screenings conducted by law enforcement incident to arrest a search).

173. *E.g.*, *United States v. Edmo*, 140 F.3d 1289 (9th Cir. 1998); *Storms*, 600 F. Supp. at 1222; *Hanson*, 588 N.W.2d at 885; *see generally* *Schmerber v. California*, 384 U.S. 757 (1966). Courts typically apply *Schmerber* because urinalysis involves, in a sense, a forced extraction of bodily fluids. *Edmo*, 140 F.3d at 1291-92; *Storms*, 600 F. Supp. at

tests of employees by government employers, most notably in two Supreme Court cases: *Skinner v. Railway Labor Executives' Association* and *National Treasury Employees' Union v. Von Raab*.¹⁷⁴ These screenings constitute a search for two reasons.¹⁷⁵ First, the process of collecting the urine sample often involves the visual or aural monitoring of the act of urination, implicating privacy interests because “[t]here are few activities in our society more personal or private than the passing of urine.”¹⁷⁶ Second, the chemical analysis of urine can reveal many private medical facts, including the presence of epilepsy and diabetes.¹⁷⁷

This did not end the inquiry, however, because in both cases, the government demonstrated a valid special need,¹⁷⁸ requiring the Court to conduct a balancing test to determine if a warrant was necessary for the search to be reasonable.¹⁷⁹ After the Court conducted this balancing test, it upheld warrantless urinalyses as reasonable in occupations where drug use poses a threat to the public safety.¹⁸⁰ Importantly, the testing schemes in these cases did not disclose any positive results to law enforcement,¹⁸¹ leading the Court to point out that the probable-cause requirement is “peculiarly related to criminal investigations” and unhelpful in administrative matters.¹⁸²

The Supreme Court, however, quickly limited *Skinner* and *Von Raab* in two critical ways.¹⁸³ First, in *Chandler v. Miller*, the Court held that the “special needs” showing is a threshold requirement for warrantless urinalysis of

1217–18; *Hanson*, 588 N.W.2d at 891. However, exigent circumstances are present in these cases because the body destroys evidence by metabolizing the drugs, making a warrant unnecessary. *Hanson*, 588 N.W.2d at 892–93.

174. *Skinner*, 489 U.S. 602; *Nat'l Treasury Employees' Union v. Von Raab*, 489 U.S. 656 (1989).

175. *Skinner*, 489 U.S. at 617.

176. *Id.*

177. *Id.*

178. In *Skinner*, the special need (and the government interest) stemmed from the safety-sensitive nature of the railroad industry and the government's need to deter and investigate railroad accidents. *Id.* at 620. In *Von Raab*, the special need at issue was the physical fitness and personal integrity of U.S. Customs agents. *Von Raab*, 489 U.S. at 671–72.

179. *Skinner*, 489 U.S. at 619; *Von Raab*, 489 U.S. at 665–66.

180. *Skinner*, 489 U.S. at 634; *Von Raab*, 489 U.S. at 679. The Court reasoned that requiring government employers to obtain a warrant before testing their employees would serve little purpose and provide few additional safeguards, while the privacy interests infringed by the tests were limited and the government's interests were substantial. *Skinner*, 489 U.S. at 624, 628; *Von Raab*, 489 U.S. at 672. Other courts cast the privacy impact in much starker terms. See *Egloff v. N.J. Air Nat'l. Guard*, 684 F. Supp. 1275, 1280 (D.N.J. 1988) (“[M]any compounds, including drug metabolites, may be detected in the urine days or even weeks after ingestion, urine screening ‘involves probing into an individual's private life’ as surely as if an employer would enter an employee's home to inspect for drugs or other contraband or to obtain more information about that employee.” (citations omitted)).

181. *Skinner*, 489 U.S. at 620–21; *Von Raab*, 489 U.S. at 666.

182. *Von Raab*, 489 U.S. at 667–68.

183. According to the Court, *Skinner* and *Von Raab* do not broadly approve warrantless urinalysis and are to be construed only in their specific contexts. *Chandler v. Miller*, 520 U.S. 305, 307 (1997).

government employees, even if the testing method is non-invasive.¹⁸⁴ Second, in *Ferguson v. City of Charleston*, the Supreme Court declined to extend warrantless, suspicionless testing to programs involving the ordinary needs of law enforcement.¹⁸⁵ *Ferguson* involved a state hospital's warrantless drug tests on certain pregnant patients for cocaine use.¹⁸⁶ Because the program disclosed positive test results to law enforcement,¹⁸⁷ the urinalysis's invasion of privacy became far more substantial than in *Skinner* and *Von Raab*.¹⁸⁸ Because the test's immediate objective was to "generate evidence for law enforcement purposes," the hospital could not claim a special need.¹⁸⁹

The urine test cases, however, do not squarely apply to community urinalysis technology for several reasons. First, community urinalysis is not an analysis of exclusively urine because wastewater contains many different compounds.¹⁹⁰ Second, wastewater testing does not amount to a bodily intrusion because it does not directly compel any specific person to perform a specific bodily function.¹⁹¹ *Schmerber* thus does not apply to community urinalysis, even if law enforcement conducts the tests.

184. *Id.* at 318 ("Because the State has effectively limited the invasiveness of the testing procedure, we concentrate on the core issue: Is the certification requirement warranted by a special need?"). According to the Tenth Circuit, *Chandler* makes the special needs requirement a preliminary examination of the government's interests, preventing warrantless and suspicionless searches even if they implicate no privacy interests. 19 Solid Waste Dep't Mechs. v. City of Albuquerque, 156 F.3d 1068, 1073 (10th Cir. 1998).

185. *Ferguson v. City of Charleston*, 532 U.S. 67, 84 (2001).

186. *Id.* at 71.

187. *Id.* at 72.

188. *Id.* at 76 n.7. Because the hospital discloses positive results to the police, the Court felt it had an "affirmative reason" to enforce the Fourth Amendment. *Id.* at 84–85. In contrast, the demonstrated government need in *Skinner* and *Von Raab* was entirely divorced from general law enforcement needs. *Id.* at 79.

189. *Id.* at 83. The court held that the "gravity" of drug use alone did not qualify as a special need. *See id.* at 86.

190. Some of these other compounds include food particles, grease, soaps, metals, detergents, and plastics. N.F. GRAY, WATER TECHNOLOGY: AN INTRODUCTION FOR ENVIRONMENTAL SCIENTISTS AND ENGINEERS 349 (2d ed., Butterworth-Heinemann 2005) (1999).

191. Even if police use this technology on a specific dwelling, the community urinalysis does not amount to a bodily intrusion for three reasons. First, the sample collected is not purely a bodily fluid, inherently weakening any link to *Schmerber*. *See* discussion *supra* note 190. Second, a wastewater sample cannot be tied to a specific person without a more sophisticated DNA analysis. Even if an individual home is sampled, the sample is linked only to a building and not to an individual person like an employment drug screening (except in one limited scenario: a home containing only one occupant who never has any guests over to visit). Finally, *Schmerber* and its progeny hold that bodily intrusions warrant higher scrutiny; the cases turn on whether an intrusion took place, not the fact that bodily fluids are involved. 384 U.S. 757, 767 (1966) (noting that the Court is "dealing with intrusions into the human body rather than with state interferences with property relationships or private papers" (emphasis added)); *cf.* *Venner v. State*, 354 A.2d 483, 497–99 (Md. Ct. Spec. App. 1976) (holding that no bodily intrusion occurred when police seized a hospital patient's excretions after they were abandoned). It is doubtful that a court would

Third, and most important, because this Note addresses law enforcement's use of this technology, the special needs exception discussed in *Skinner* and *Von Raab* almost certainly does not apply.¹⁹² Community urinalysis by law enforcement must therefore be examined under a normal Fourth Amendment warrant and probable-cause analysis.

E. Summary

Community urinalysis is a powerful tool for law enforcement that has a profound impact on personal liberties, whether or not it triggers any constitutional restraints. The technology's impact is most potent when it is used to test individual homes or buildings.¹⁹³ Nevertheless, the answer to whether its use on a home constitutes a search is murky.

A court presented with this question must balance four issues that give potentially conflicting signals: a reasonably analogous precedent in *Riverdale* that holds industrial wastewater testing a non-search, a garbage-pull analogy that is potentially undermined in a number of critical ways, the possibility that the homeowner's wastewater is conveyed to the sewer company at the point of testing, and the skepticism usually displayed by courts toward police use of sophisticated technology. The residential setting of these tests, combined with the weakened persuasiveness of any trash analogy and the judicial skepticism toward the use of technology in the home, strongly counsels that a court should declare the use of this technology on a home's wastewater a search.¹⁹⁴

This conclusion, however, is by no means certain or compelled. As the arguments repeatedly stress, there is ample doctrinal room in both the trash-pull and technology jurisprudence for a contrary conclusion. A court could find that the wastewater is no longer the homeowner's property at the point it is tested, causing the homeowner's challenge to fail for a lack of standing. Moreover, courts could simply extend *Riverdale*'s result because it is reasonably analogous to community

hold that the monitoring of a home's wastewater implicates the exact quantum of dignitary interests as a compelled urinalysis, which involves urination at a specific time into a specific container while closely monitored.

192. An argument could be made that testing of wastewater for strictly environmental or public health purposes constitutes a special need, requiring a court to conduct the balancing test performed by *Skinner* and *Von Raab*. Such an argument is beyond the scope of this Note.

193. A positive test result for a structure indicates the possible presence of either drug manufacturing or, in the case of metabolites, the presence of people who have used drugs. This information gives police a location to concentrate their drug-enforcement efforts. Officers can conduct visual surveillance, dog sniffs, and garbage-pulls on homes that "test positive" for drug activity. Officers could also monitor the building's residents and guests and look for justification to conduct investigative stops of those individuals. Any positive readings could also be used in applications for search warrants, especially in the case of suspected drug manufacturing, and in prosecutions. Widespread and continuous testing of homes would give police a real-time list of homes to monitor.

194. If a court deems this community urinalysis technology a search, a warrant will be necessary to establish reasonableness because the government cannot demonstrate a special need for this use of the technology. See *supra* note 192 and accompanying text.

urinalysis, even in the face of all the arguments discussed above that weaken the case's applicability.

II. OTHER POTENTIAL SETTINGS FOR COMMUNITY URINALYSIS

Community urinalysis technology has possible uses in other settings that also impact personal liberties. The technology can test wastewater anywhere it is found, including the public sewer works, schools, and private buildings.

A. Sewer Mains and Wastewater Plants

Community urinalysis's current uses are limited to testing the wastewater present in public works like treatment plants.¹⁹⁵ Testing wastewater at this broader level for drugs generates a more accurate picture of drug use and yields drug-use data that can be analyzed from multiple perspectives.¹⁹⁶ More accurate data about drug activity, however, also makes enforcement efforts more potent. Law enforcement agencies can allocate resources to areas where they know drug activity is taking place instead of using informants or surveys, which are not as reliable. Although removing the "fog of war" inherent to drug enforcement makes law enforcement more efficient, a laudable goal, this potentially comes at the cost of undermining liberty interests.

For example, if police detect the dumping of a drug stash¹⁹⁷ from a sewer main test,¹⁹⁸ they can divert resources into the area and conduct what is, effectively, a drug interdiction for an entire neighborhood to look for the source of the stash. This can entail surveillance of homes and buildings in the neighborhood, and more police interactions with the area's citizens. These citizen interactions can range from the questioning of people who are outdoors in the area to more invasive door-to-door questioning of every home and every resident.¹⁹⁹ More intrusive encounters, such as stops, searches, and arrests, are the inevitable result of increased surveillance activities and increased citizen interactions. For neighborhoods with extreme or recurring drug problems, police could conduct intense drug interdictions and even neighborhood lockdowns, similar to the checkpoints used in Washington, D.C.'s violence-plagued Trinidad neighborhood.²⁰⁰

195. See discussion and sources cited *supra* notes 8–12.

196. See discussion and sources cited *supra* notes 15–20.

197. Used across multiple sewer mains, sewer main testing also reveals which areas have the highest concentration of drug activity and use, allowing police to allocate resources to those areas.

198. Police can test one specific geographic unit by sampling from a sewer main, be it an individual city block, street, or even an entire subdivision, depending on the main tested.

199. This includes the possibility of the questioning leading to the probable cause necessary to conduct searches of homes and make arrests, whether or not they are related to the initial drug spike.

200. Allison Klein, *D.C. Police to Check Drivers In Violence-Plagued Trinidad*, WASH. POST, June 5, 2008, at A1. Police could conduct intense lockdowns of the most drug-

Wastewater-plant testing has a similar potential impact on personal liberties, but it is more indirect and focuses on resource allocation at a broader level. Projects like Dr. Field's map of Oregon drug use²⁰¹ allow state and federal agencies to allocate their resources, including law enforcement and public health resources, across municipalities rather than neighborhoods. Data from municipal-level tests could also play a crucial role in determining the allocation of federal drug-enforcement grants, effectively placing more law enforcement in localities with higher drug concentrations. Of course, combining wastewater-plant and sewer-main testing allows law enforcement resources to be allocated on both the municipal and neighborhood level, producing a very powerful result.

Despite these potential consequences for personal liberty, testing of wastewater from sewer mains or treatment plants does not trigger constitutional scrutiny. These tests do not constitute a search because the wastewater has entered the public domain, similar to pulling trash from a garbage truck or a communal dumpster.²⁰² Once the water enters the sewer main, it is the sewer company's property, eliminating any rights that an individual homeowner might claim.²⁰³ Thus, any challenge to testing wastewater once it enters the public works will fail for a lack of standing.²⁰⁴

B. Schools

Schools might use wastewater testing as a tool to ferret out their students' drug activity. Testing an entire school's wastewater discharge gives an accurate picture of the prevalence of drug use among the student body, similar to tests conducted on a city's wastewater. A school could test restrooms located in certain areas to determine how drug use varies across different groups of students. If officials determine that drug use is rampant among a school's population, administrators could even place a device on each individual toilet that detects the presence of drugs in any given student's urine.²⁰⁵

afflicted neighborhoods, creating Trinidad-style checkpoints for all drivers entering these neighborhoods.

201. See *OR Gets Drug Test*, *supra* note 17.

202. See *United States v. Michaels*, 726 F.2d 1307, 1312–13 (7th Cir. 1984).

203. See 11 MCQUILLIN MUN. CORP. § 31.29 (3rd ed.); see also discussion *supra* Part I.B.

204. The standing problem is present as a matter of federal law because a challenger will not be able to demonstrate that he had a reasonable expectation of privacy in his wastewater once it is present in public sewer works and commingled with the waters from other customers. *Rakas v. Illinois*, 439 U.S. 128, 140 (1978) (conferring standing only if a defendant's reasonable expectation of privacy is violated). Moreover, any challenger has no possessory interest in the area searched (the public sewer works) or his wastewater once the water is in the public sewer works, factors that are potentially important in state standing doctrine. See sources cited *supra* note 203.

205. These devices could easily be developed from current technology. See Japan Patent No. JP10267924 (filed Mar. 28, 1997) (describing a urinal that conducts real-time urinalysis); U.S. Patent App. No. 20080192249 (filed May 13, 2004) (describing a portable drug-screening device).

No student will have standing to contest a school's testing of its entire wastewater flow or even the wastewater generated in one specific area.²⁰⁶ Even in the case of individual fixture monitoring, there is a plausible argument that the student cedes any privacy interest in his wastewater by conveying the wastewater to the school when he uses school-owned sewer works and fixtures.²⁰⁷ This is consistent with the idea that a homeowner does not convey his wastewater to a third-party sewer company until the water enters the sewer company's works.²⁰⁸ Although this argument is tempting, it is important to remember that, under the *Katz* regime, the Fourth Amendment does not necessarily turn on property law concepts.²⁰⁹ A court may simply ignore the fact that the fixtures are school-owned when confronted with a ubiquitous and extremely invasive drug-testing program.²¹⁰

Even if the student does not convey his wastewater to the school as a matter of property law, it is not immediately clear that the student has a reasonable expectation of privacy in the tested wastewater.²¹¹ Although courts have upheld random drug-testing programs for certain students, such as student athletes,²¹² this technology can reach every single student at all times, making the testing regime far more invasive. School officials, however, have no discretion whatsoever about who these devices test.²¹³ They can take samples without direct human monitoring, preserving the student's recognized privacy expectation in the act of excretion.²¹⁴ The devices can be programmed to only reveal the presence of drugs and only

206. See sources cited and discussion *supra* note 204; see also discussion *supra* Part I.B.

207. See *supra* note 105 and accompanying text.

208. See discussion *supra* Part I.B.

209. *Katz v. United States*, 389 U.S. 347, 351 (1967) (“[T]he Fourth Amendment protects people, not places.”).

210. Many decisions hold that students can have a reasonable expectation of privacy in school lockers, even though the school certainly has ownership of these facilities. See generally Alexander C. Black, Annotation, *Search Conducted by School Official or Teacher as Violation of Fourth Amendment or Equivalent State Constitutional Provision*, 31 A.L.R.5th 229 (1995); but see *In re Patrick Y.*, 746 A.2d 405, 412–13 (Md. 1999) (holding no reasonable expectation in a locker because a state statute allowed searches of “the physical plant of the school and its appurtenances, including the lockers of students”).

211. To determine whether a student has a reasonable expectation of privacy, a court balances the nature of the student's privacy interest, the character of the intrusion, and the nature of the school's interest. *Vernonia Sch. Dist. 47J v. Acton*, 515 U.S. 646, 657–58, 660 (1995). Although courts have concluded that students participating in athletic programs have a limited privacy interest, this is based on an analogy between athletics and closely-regulated industries. *Id.* at 657; *Bd. of Educ. of Indep. Sch. Dist. No. 92 v. Earls*, 536 U.S. 822, 832 (2002). The general school population could thus have a somewhat heightened privacy interest.

212. *Vernonia*, 515 U.S. at 664–65; *Earls*, 536 U.S. at 838.

213. This fact might be irrelevant because officials have decided to test everybody, an inherently more invasive action.

214. *Vernonia*, 515 U.S. at 658 (describing the testing conditions as “nearly identical to those typically encountered in public restrooms”); *Earls*, 536 U.S. at 832–33.

disclose information to school officials, obviating the concern that the testing can disclose information about the student's medical condition.²¹⁵

Although monitoring each individual fixture's wastewater is a much more invasive drug-testing regime than any upheld so far by the courts, a court could still uphold the program in light of the school's special needs and compelling interest in preventing drug use.²¹⁶ A court, however, could reach a contrary result simply because the testing regime is ubiquitous, giving the general student body a reasonable expectation of privacy in the wastes they dispose of at school.

C. Private Buildings

Private building owners also have a number of possible uses for wastewater-testing technology. Landlords could test the buildings they lease to determine the precise extent of drug activity involving their properties. A positive test result could be used as grounds to evict the tenant or even reported to law enforcement. Employers could test their facilities to ascertain the extent of drug use among their employees. Upon finding evidence of drug use, firms can determine whether to implement drug-testing regimes, mandatory drug-education courses, or even policies coercing employees to disclose their knowledge of any illegal drug use among fellow employees.²¹⁷ Private parties could thus obtain what essentially amounts to private medical information about individuals with whom they have employment or business relationships.²¹⁸

Even if these actions are obviously searches, Fourth Amendment protections are wholly inapplicable to searches conducted by private parties if the party is not acting as a government agent.²¹⁹ As a result, private parties not engaging in state action can test the wastewater generated in their buildings without constitutional oversight.

215. The school's steps to protect student confidentiality were critical to the testing regimes upheld by the Supreme Court. *Vernonia*, 515 U.S. at 658 (noting that the test results are disclosed only to certain school officials, are not turned over to law enforcement, and do not result in internal disciplinary action); *Earls*, 536 U.S. at 833-34 (same).

216. *Vernonia*, 515 U.S. at 653 (pointing out that special needs inhere in the school context). This is an especially appealing argument if the school can demonstrate it employed this strategy in response to a devastating drug problem among its students.

217. As this technology becomes more common, tort law duties and standards of care for both employers and landlords could shift to require these tests.

218. Government employers and schools could use community urinalysis for this same purpose, but this raises questions of state action that could ultimately place this use under constitutional scrutiny.

219. *Skinner v. Ry. Labor Executives' Ass'n*, 489 U.S. 602, 613-14 (1989); *New Jersey v. T.L.O.*, 469 U.S. 325, 335 (1985).

III. A STATUTORY ALTERNATIVE FOR REGULATING COMMUNITY URINALYSIS

As the above discussion demonstrates, constitutional law may not effectively protect privacy interests,²²⁰ especially when advanced technology is involved.²²¹ Although it is possible that a court writing on a clean slate just after *Katz* would find a reasonable expectation of privacy in wastewater using largely intuitive judgments about what society considers reasonable, courts typically do not apply the *Katz* standard to a fact pattern from this de novo perspective. Instead, they draw analogies to other search doctrines that purport to apply the *Katz* standard,²²² placing novel scenarios into old straitjackets and limiting the Fourth Amendment's ability to protect privacy.

A better alternative is to enact statutes and regulations that govern the use of wastewater-testing technology, similar to the federal statutory schemes that regulate wiretapping, pen registers, and bank records.²²³ These statutes provide more privacy protections than courts are willing to recognize as a matter of constitutional law.²²⁴

Federal wiretapping statutes apply in both federal and state proceedings because Congress regulates the interstate telecommunications network pursuant to its authority under the Commerce Clause.²²⁵ Arguing that Congress has Commerce Clause authority to regulate community urinalysis in an analogous way will be more difficult because public sewer works tend to be local and insular,²²⁶ not part

220. Alternatively, using constitutional law to regulate community urinalysis could entail courts making fine distinctions based on sewer system design and ownership, such as whether the property owner owns the lateral that contains the wastewater. See discussion *supra* Part I.B.

221. *United States v. Hibbitt*, 208 F. Supp. 2d 1026, 1040 (D. Alaska 2000) (expressing concern that technology is "quickly outstripping" the Fourth Amendment).

222. See *Riverdale Mills Corp. v. Pimpare*, 392 F.3d 55, 64 (1st Cir. 2004) (analogizing wastewater to trash instead of conducting a de novo *Katz* analysis).

223. See 18 U.S.C. §§ 2510–2522 (2006) (wiretapping).

224. Congress enacted statutes regulating pen registers and bank records in response to Supreme Court rulings that were unfavorable toward privacy. In response to *Smith v. Maryland's* treatment of pen registers, Congress enacted the Communications Assistance for Law Enforcement Act, requiring a court order before police can use a pen register. 18 U.S.C. § 3122(a) (2006). The Right to Financial Privacy Act was enacted in response to *Miller v. United States* and requires customers to receive notice before banks turn over records to the federal government. 12 U.S.C. §§ 3401–3422 (2006).

225. *United States v. Blattell*, 340 F. Supp. 1140, 1142 (N.D. Iowa 1972) (noting that because "the facilities used to transmit wire communications form part of the interstate or foreign communications network, Congress has plenary power under the commerce clause to prohibit all interception of such communications"). Federal wiretapping statutes apply in state proceedings except when state laws on point are stricter. *Roberts v. Americable Int'l Inc.*, 883 F. Supp. 499, 503 (E.D. Cal. 1995).

226. Federal regulation of sewer systems in other contexts typically relies on the Commerce Clause. Environmental regulation of sewer discharges relies on Congress's authority under the Commerce Clause to regulate discharges into navigable waters. *United States v. Ashland Oil & Transp. Co.*, 504 F.2d 1317, 1325–26 (6th Cir. 1974).

of an interstate network like telecommunications.²²⁷ Congress thus might lack constitutional authority to enact sweeping federal regulations comparable to the wiretapping statutes. If this is the case, each state would need to enact its own community urinalysis regulations.

A statutory scheme could regulate both police use and private use of wastewater testing and enact different regulations for different testing circumstances. The goal of a statutory scheme should be to allow for the most benign uses of community urinalysis, such as tracking the spread of narcotics or allocating police resources, while protecting against direct intrusions on personal liberty. Possible regulatory alternatives for any given use of community urinalysis include an outright ban, a requirement of reasonable suspicion or probable cause, or no restriction at all.²²⁸

A statutory scheme should require police to have a warrant before testing an individual home's wastewater.²²⁹ Although unfettered community urinalysis certainly makes drug enforcement much easier by identifying any home connected with drug activity, this information comes at too severe of a price: compromising the sanctity of the home and personal liberty. An outright ban is equally undesirable, however, because this investigative method can generate valuable evidence and aid in prosecuting drug activity.

In contrast, statutes should not restrict the testing of sewage from wastewater plants because the impact to liberty interests from these tests is too attenuated when balanced with the valuable data that these tests give law enforcement and public health officials. Sewer main testing presents a tougher problem. It provides equally valuable data for resource allocation, but the cost to personal liberties is more direct,²³⁰ albeit less severe, than the testing of an individual home. To balance these competing considerations, regulations could delineate between larger and smaller sewer mains²³¹ because a test's impact on personal liberties becomes more severe as the geographic area tested shrinks. On this question, each legislature could strike a different balance, creating a panoply of different regulations governing the use of this technology on sewer mains.

Statutes can (and should) regulate non-law-enforcement government entities that may use community urinalysis, such as schools and government employers, thus playing a critical role in countering the judiciary's reluctance to

227. Congress, however, can still regulate community urinalysis in a number of ways. It can regulate how evidence obtained from community urinalysis is used in federal courts and how federal agencies, including federal law enforcement, can use the technology. Congress could also attach conditions related to the technology on federal drug-enforcement grants or grants given for the development of sewer infrastructure.

228. Any violations of these regulations could, like the wiretapping statutes, trigger civil and criminal remedies. The statute could also contain an exclusionary rule prohibiting the use of evidence obtained by any illegal use of wastewater testing.

229. Using the warrant standard would bring community urinalysis in line with other technologies, such as thermal imaging and beepers. *See supra* Part I.C.

230. *See discussion supra* Part II.A.

231. These could include mains serving small areas, such as an individual street or a city block.

apply strong Fourth Amendment protections in school settings. A regulatory regime should allow schools to test the entire institution's wastewater flow, but ban the placement of testing devices on each fixture.

Statutes also have the critical advantage of reaching the use of wastewater monitoring by private parties, a group that usually cannot be regulated by constitutional means. The regulatory possibilities for private use of community urinalysis are literally endless because the number of possible uses of community urinalysis is infinite. Statutes should, however, require landlords and employers to notify tenants and employees that they are subject to wastewater testing. They should also prohibit private parties from monitoring individual fixtures, similar to the regulations applicable to schools. Finally, a statute should require any entity keeping records of wastewater tests, including sewer companies, to notify all affected parties before revealing the records to law enforcement, similar to the Right to Financial Privacy Act.²³²

A regulatory scheme can proactively consider many possible uses of community urinalysis at one time instead of relying on courts to create rules and carve exceptions in a reactionary and piecemeal manner.²³³ Legislation thus gives any users of community urinalysis greater certainty about which uses of the technology are acceptable and informs law enforcement what level of suspicion is necessary to conduct a particular test in a particular setting.²³⁴

A regulatory approach, however, ultimately relies on political institutions to become effective, a potentially critical downfall. A politician who supports tough regulations risks being branded as "soft on crime,"²³⁵ which could prompt legislators to either refuse to regulate the technology or regulate it only minimally. Additionally, the set of interest groups who would favor extensive use of community urinalysis, such as police unions and anti-drug advocates, are more powerful than the set of interest groups who would lobby for tough restrictions on wastewater testing, such as civil-libertarian organizations. The political process thus might not be a reliable method to develop strong restrictions on community urinalysis technology.

CONCLUSION

Community urinalysis technology demonstrates how fragile the seemingly sweeping protections granted by the Fourth Amendment truly are, even against actions that profoundly impact personal liberty. The argument that

232. See discussion *supra* note 224.

233. This also avoids litigation based on fine factual distinctions, something that has arguably characterized the garbage-pull jurisprudence. See *supra* Part I.A.

234. Of course, a court can always overrule a statute and require a greater degree of suspicion as a matter of constitutional law. For example, if a statute requires reasonable suspicion before testing household wastewater, a court could effectively overrule the statute by requiring a warrant.

235. *But see* Zogby Int'l, *Zogby/Inter-American Dialogue Survey: Public Views Clash with U.S. Policy on Cuba, Immigration, and Drugs*, Oct. 02, 2008, <http://www.zogby.com/news/ReadNews.cfm?ID=1568> (last visited Mar. 1, 2009) (revealing that 76% of Americans believe the "War on Drugs" is failing and 27% of Americans even support legalizing some drugs).

wastewater testing of a home constitutes a search under the Fourth Amendment is persuasive and intuitively appealing, but extremely tenuous. Moreover, the Fourth Amendment does not protect the liberty interests impacted by wastewater testing of sewer mains or treatment plants and cannot prohibit private parties from conducting their own tests, suggesting the need for statutes and regulations. Enacting a strong statutory framework to govern community urinalysis could, however, face tough political hurdles because risk-averse legislators may not want to seem soft on crime or drug abuse.

If community urinalysis advances like most technologies, the drug-testing methods pioneered by Dr. Field will eventually become cheaper, allowing more communities, and possibly even individuals, to employ this equipment. As wastewater testing proliferates, courts, policymakers, and attorneys will need to grapple with its implications on privacy. If none of these institutions act, Justice Scalia's fear in *Kyllo*—that citizens will be left at the mercy of advancing technology—will materialize.²³⁶

236. *Kyllo v. United States*, 533 U.S. 27, 35 (2001).