EPA
810
1999.1

U.S. EPA Headquarters Library
Mail code 3201
1200 Pennsylvania Avenue NW
Washington DC 20460

DRAFT ECONOMIC ANALYSIS FOR FINAL RULE: REVISIONS TO THE UNDERGROUND INJECTION CONTROL REGULATIONS FOR CLASS V INJECTION WELLS

#47059916

U.S. Environmental Protection Agency
Office of Ground Water and Drinking Water

August 19, 1999

Table of Contents

1. Executive Summary 1

2. Introduction 6

2.1 Background 6

2.2 Summary of Options Considered in the Analysis 8

2.2.1 Options for Motor Vehicle Waste Disposal Wells 8
2.2.2 Options for Large-Capacity Cesspools 9

3. Entities Affected by the Rule 10

3.1 Number of Affected Class V Wells 10

3.1.1 Accounting for Existing Regulatory Programs 11
3.1.2 Estimating the Number of Wells in Ground Water Protection Areas and Sensitive Ground Water Areas 12
3.1.3 Estimated Numbers of Affected Wells 14

3.2 Affected Industries 15

4. Costs of the Rule 18

4.1 Costing Methodology for Motor Vehicle Waste Disposal Wells 19

4.1.1 Overview 19
4.1.2 Waste Stream Characterization 26
4.1.3 Best Management Practices 28
4.1.4 Injectate and Sludge Monitoring 29
4.1.5 Sludge Disposal 31
4.1.6 Permit Applications 31
4.1.7 Well Closure 31
4.1.8 Off-Site Treatment and Disposal 33
4.1.9 Soil Sampling and Remediation 36

4.1.10 Other Administrative Costs 37
4.1.11 Calculation of Average Facility Costs 37
4.1.12 Determining National Cost to Owners and Operators of Motor Vehicle Waste Disposal Wells 38

4.2 Costing Methodology for Large-Capacity Cesspools 40

4.3 Costing Methodology for States and EPA 41

4.4 Cost Results 41

4.5 Limitations of the Analysis 42

5. Economic Impacts 44

5.1 Average Cost Per Facility 44

5.2 Impacts on Owners and Operators 44

6. Regulatory Flexibility Analysis 49

6.1 Need for and Objectives of the Rule 49

6.2 Issues Raised by Public Comments in Response to the IRFA 50

6.3 Description and Estimate of the Number of Small Entities Affected . . . 51

6.4 Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements of the Final Rule 54

6.5 Minimizing Impacts on Small Entities 55

6.5.1 Steps Taken to Minimize Impacts 55
6.5.2 Alternatives Not Adopted 56

Apendices

Appendix A: Number of Large-Capacity Cesspools and Motor Vehicle Waste Disposal Wells as Reported in the Class V Study

Appendix B: Economic Analysis Estimate of Potentially Affected Wells

Appendix C: Summary of States' Class V UIC Well Inventories and Programs, and Implications for the Economic Analysis

Appendix D: Estimating the Number of Wells in Ground Water Protection Areas

Appendix E: Estimating the Number of Wells in Sensitive Ground Water Areas

Appendix F: Sampling and Monitoring Costs for Motor Vehicle Waste Disposal Wells

Appendix G: On-Site Treatment Costs

Appendix H: Average Capital and O&M Costs for Wells Under the Ban Options (1a, 2a, and 3a)

Appendix I: Average Capital and O&M Costs for Wells Under the Ban with Waiver Options (1b, 2b, and 3b)

Appendix J: Unit Costs Associated with Large-Capacity Cesspool Closures

Appendix K: Estimating Per Facility Sales for Facilities in Each Affected SIC Category

Appendix L: SBA Size Thresholds for Affected Facilities

Appendix M: Data and Calculations for SIC Codes in the Utilities Sector

Appendix N: Data for Towns with Populations Under 50,000

1. Executive Summary

Class V injection wells are regulated under the authority of Part C of the Safe Drinking Water Act (SDWA). The SDWA is designed to protect the quality of drinking water in the United States, and Part C mandates the regulation of underground injection of fluids through wells. Section 1421 of the Act requires the U.S. Environmental Protection Agency (EPA) to promulgate regulations specifying minimum requirements for State programs to prevent underground injection from endangering drinking water sources. The 1996 SDWA Amendments make source water protection a national priority. The Amendments create powerful incentives for States to assess their own source waters and for water systems and States to establish source water protection programs that fit their particular needs and conditions.

Consistent with the national priority established by the 1996 SDWA Amendments, the final Class V rule adds new requirements for two high-risk categories of Class V wells to ensure protection of underground sources of drinking water. In particular, it: bans new motor vehicle waste disposal wells and new and existing large-capacity cesspools nationwide, and bans existing motor vehicle waste disposal wells in ground water protection areas and other sensitive ground water areas with a waiver provision that will allow well owners/operators to seek a permit. For the purposes of this rule, ground water protection areas are source water protection areas delineated in accordance with the 1996 SDWA Amendments for community and non-transient non-community water systems that use ground water as a source. Other sensitive ground water areas include additional designated, productive, or vulnerable locations that are critical for the protection of underground sources of drinking water.

Analysis of Compliance Costs

EPA estimated the cost of the rule and several regulatory options. Exhibit 1-1 summarizes the regulatory alternatives considered and the associated annualized compliance cost estimates. The exhibit also presents the estimated number of affected wells for each option. The final rule promulgates Option 2b for motor vehicle waste disposal wells and Option 3 for large-capacity cesspools.

EPA estimated the number of injection wells affected by the final rule using results from the Agency's 1999 "Class V Study," a comprehensive survey of EPA Regional and State staff responsible for implementing underground injection control (UIC) programs. These survey results provide the best available information on the total number of motor vehicle waste disposal wells and large-capacity cesspools in all States and territories. The number of wells potentially affected by the Class V rule was then adjusted to account for (1) existing regulatory

and implementation conditions, and (2) whether the wells are located in ground water protection areas or other sensitive ground water areas targeted by the final rule.

Exhibit 1-1
Summary of the Regulatory Options and Estimated Costs

Options	Description	Number of Affected Wells	Total Annualized Cost
Motor Vehicle Waste Disposal Wells			
Option 1a	Ban in Ground Water Protection Areas	761	$ 4,100,000
Option 1b	Ban/Waiver in Ground Water Protection Areas	745	$ 3,100,000
Option 2a	Ban in Ground Water Protection Areas and Other Sensitive Ground Water Areas	5,699	$ 24,600,000
Option 2b	Ban/Waiver in Ground Water Protection Areas and Other Sensitive Ground Water Areas	5,324	$ 17,900,000
Option 3a	Ban Statewide	16,688	$ 70,400,000
Option 3b	Ban/Waiver Statewide	15,138	$ 49,600,000
Large-Capacity Cesspools			
Option 1	Ban in Ground Water Protection Areas	86	$ 200,000
Option 2	Ban in Ground Water Protection Areas and Other Sensitive Ground Water Areas	1,179	$ 3,300,000
Option 3	Ban Statewide	2,723	$ 7,600,000

For Options 1b, 2b, and 3b for motor vehicle waste disposal wells (the ban with waiver options), the analysis excludes wells in States that maintain effective permit programs that are at least as stringent as the federal minimum requirements in the final Class V rule. These wells are included in the analysis, however, when evaluating options that would require the wells to be closed (i.e., Options 1a, 2a, and 3a). Similarly, the economic analysis does not include any motor vehicle waste disposal wells or large-capacity cesspools in States that already ban such wells, because wells in those States will be closed regardless of EPA's rulemaking efforts. After making the adjustments based on existing state UIC regulatory programs, the analysis then estimates the number of wells actually affected based on whether the remaining wells are likely to be located within ground water protection areas or other sensitive ground water areas. To estimate how many of the existing wells fall within ground water protection areas, the analysis assumes that wells are twice as likely to be located within a ground water protection area as outside a ground water protection area. To estimate the number of wells located within sensitive

ground water areas, the analysis considered State-specific data regarding settings that often lead to an area being considered sensitive for purposes of ground water protection.

Compliance costs were then estimated for each option based on: (1) the number of wells likely to be affected and (2) compliance strategies likely to be used by owners and operators of affected Class V wells. These compliance costs were then allocated over an expected compliance schedule (see Section 4.1.12) that recognizes that some well owners and operators will comply by an earlier date than others. Finally, average national annual compliance costs for well owners and operators were calculated for each option (as presented in Exhibit 1-1 above).

Analysis of Economic Impacts

EPA then evaluated the economic impact each option would have on affected facilities. The average annualized cost per facility to owners and operators of motor vehicle waste disposal wells is estimated to range from approximately $4,300 to $14,400, depending on the waste streams generated by the facility and the regulatory option. Exhibit 1-2 presents the average per facility cost for each standard industrial classification (SIC) category included in the analysis, both for the ban options (1a, 2a, 3a) and the ban/waiver options (1b, 2b, 3b). The average annualized cost per facility to owners and operators of large-capacity cesspools is estimated at $3,626, regardless of the option being considered, because all of the options would ban such cesspools.

The economic criteria used to assess the financial impact of the final regulation on affected businesses are based on the "Sales Test" (i.e., compliance costs as a percentage of total sales). EPA estimates that compliance costs will exceed one percent of sales for almost half of the affected entities operating motor vehicle waste disposal wells, while about 18 percent of entities operating such wells will incur costs exceeding three percent of sales. For virtually all of the entities comprising this 18 percent, costs as a percent of sales are estimated to range from 3.1 percent to 8.3 percent. These figures almost certainly overstate impacts because they assume that all facilities incur the "average" compliance cost for their industry. In reality, compliance costs are likely to be proportional to economic activity. That is, facilities that do little business should generate less wastewater (and incur lower compliance costs) than facilities that do more business.

An estimated 2,700 facilities will incur costs associated with closing large-capacity cesspools. However, available data on the type of establishments that use large-capacity cesspools are insufficient to evaluate impacts on these affected entities.

Exhibit 1-2
Average Per Facility Cost of Compliance
for Motor Vehicle Waste Disposal Wells Options

SIC Number	SIC Description	"Ban" Options 1a, 2a, 3a	"Ban/Waiver" Options 1b, 2b, 3b
4142	Bus charter service, except local	$5,745	$5,013
4212	Local trucking, without storage	$5,745	$5,013
4213	Trucking, except local	$5,745	$5,013
4581	Airports, flying fields, and airport terminal	$14,353	$10,869
5015	Motor vehicle parts, used	$12,590	$ 6,896
5511	Motor vehicle dealers (new and used)	$12,590	$6,896
5521	Motor vehicle dealers (used only)	$12,590	$6,896
5531	Auto and home supply stores	$6,115	$4,314
5541	Gasoline service stations	$5,745	$5,013
7514	Passenger car rental	$5,745	$5,013
7515	Passenger car leasing	$12,590	$6,896
7532	Top, body, and upholstery repair shops and paint shops	$5,745	$5,013
7533	Auto exhaust system repair shops	$5,745	$5,013
7537	Automotive transmission repair shops	$5,745	$5,013
7538	General automotive repair shops	$5,745	$5,013
7539	Automotive repair shops, not elsewhere classified	$5,745	$5,013
7549	Automotive services, except repair and carwashes	$7,116	$5,270
9111	Municipal and solid waste township management and road facilities	$6,115	$4,314

Regulatory Flexibility Analysis

As part of the Regulatory Flexibility Analysis, EPA also estimated the number of potentially affected facilities within different commercial and industrial sectors, along with the fraction and number of those facilities that qualify as small entities. Approximately 4,800 small businesses and 370 small governments will be affected by the motor vehicle well provisions of the final rule. Of the 18 SIC categories used in the economic analysis, 17 are comprised mainly of small entities (at least 95 percent of all facilities in the category). The other category (SIC 5511, used motor vehicle dealers) consists of 77 percent small businesses. Data on the type of entities that use large-capacity cesspools are insufficient to analyze impacts.

For these small entities, about 50 percent of the affected entities are estimated to incur costs that represent more than 1 percent of their sales (or revenue for small governments); whereas, about 18 percent of the affected small entities are estimated to incur costs that represent more than 3 percent of their sales (or revenue for small governments). For virtually all of the small entities comprising this 18 percent, costs as a percent of sales are estimated to range from 3.1 percent to 8.3 percent. These figures are likely to be overstated because they assume that all small entities incur the "average" compliance cost for their industry. In reality, compliance costs are likely to be proportional to economic activity. That is, small facilities that do relatively less business should generate less wastewater (and incur lower compliance costs) than facilities that do more business. In addition, the number of affected small entities also is overstated because the analysis does not take into consideration that some businesses are subsidiaries of larger businesses and thus may not qualify as small businesses under the Regulatory Flexibility Analysis.

Based on this analysis, EPA believes that the final rule may have a significant impact on a substantial number of small entities. This is consistent with the Agency's analysis of the proposed rule (63 FR 40586, July 29, 1998). Accordingly, EPA has worked to identify and include small business concerns into the rulemaking process by conducting small entity outreach and convening a Small Business Advocacy Review Panel, and has taken these concerns into account in selecting the final rulemaking option.

2. Introduction

2.1 Background

Class V injection wells are generally shallow waste disposal wells, storm water and agricultural drainage systems, or other devices used to release fluids either directly into underground sources of drinking water (USDWs) or into the shallow subsurface that overlies USDWs.[1] In order to qualify as a Class V well, the well cannot release fluids that meet the definition of a hazardous waste under the Resource Conservation and Recovery Act (RCRA). Class V wells are located in virutally every State, expecially in unsewered areas where the population is likely to depend on ground water. Frequently, these wells are designed as no more than shallow holes or septic tank and leachfield combinations intended for sanitary waste disposal. While such designs may be adequate for the treatment of sanitary waste, they may not be appropriate for the disposal of other fluids, although they are sometimes used for this purpose.

In the Safe Drinking Water Act (SDWA) of 1974, Congress required that the U.S. Environmental Protection Agency (EPA) protect current and future USDWs from endangerment. Class V wells are subject to EPA's underground injection control (UIC) regulations promulgated under the authority of Part C of the SDWA. Under the existing federal regulations, Class V wells are "authorized by rule" (40 CFR 144), which means they do not require a permit if they comply with the UIC program requirements. Chief among therse requirements is that the operations of Class V wells must not allow fluid containing any contaminants to move into USDWs where the presence of the contaminants may cause violations of the primary drinking water regulations or may otherwise adversely affect public health.

The 1996 Amendments to the SDWA establish source water protection as a national priority. Source waters consist of underground aquifers or surface water bodies from which one or more public drinking water systems receive supplies of drinking water. The Amendments provide incentives for States to assess their source waters, including the susceptibility of public water systems to contamination, and to establish State drinking water source assessment and protection programs that fit their particular needs and conditions.

EPA believes that it is necessary to revise the Class V UIC regulations to (1) clarify EPA's position on known high-risk categories of Class V wells and (2) integrate UIC regulations

[1] Any well that is not included int Classes I through IV, as defined in 40 CFR 144.6, is considered a Class V well.

with the new programs for source water protection. The revised Class V requirements also fulfill EPA's obligations under a 1997 consent decree with the Sierra Club.[2]

This report documents the economic analysis and the Final Regulatory Flexibility Analysis prepared by EPA to accompany the Agency's final rule "Revisions to the Underground Injection Control Regulations for Class V Injection Wells." The rulemaking adds new requirements for the following two high-risk categories of Class V wells to ensure protection of USDWs:

- *Motor vehicle waste disposal wells.* These are drywells[3] or septic tank and leachfield combinations that receive or have received fluids from vehicular repair or maintenance activities, such as an auto body repair shop, automotive repair shop, new and used car dealership, specialty repair shop (e.g., transmission and muffler repair shop), or any facility that does any vehicular repair work. Fluids disposed in these wells may contain organic and inorganic chemicals in concentrations that exceed the maximum contaminant levels (MCLs) established by the primary drinking water regulations (see 40 CFR Part 142). These fluids also may include waste petroleum products and may contain contaminants, such as heavy metals and volatile organic compounds, which pose risks to human health.

- *Large-capacity cesspools.* Cesspools are drywells that receive untreated sanitary waste, and which sometimes have an open bottom and/or perforated sides. The UIC requirements do not apply to single-family residential cesspools nor to non-residential cesspools that receive solely sanitary waste and have the capacity to serve fewer than 20 persons a day.

In particular, the final rule: bans new motor vehicle waste disposal wells and new and existing large-capacity cesspools nationwide, and bans existing motor vehicle waste disposal wells in ground water protection areas and other sensitive ground water areas with a waiver provision that will allow well owners/operators to seek a permit. For the purposes of this rule, ground water protection areas are source water protection areas delineated in accordance with the 1996 SDWA Amendments for community and non-transient non-community water systems that

---

[2] Sierra Club vs. EPA, Civil Action no. 93-2644 filed in United States District Court, District of Columbia on January, 28 1997.

[3] A drywell is a bored, drilled, or driven shaft or a dug hole whose depth is greater than its largest surface dimension, which is completed above the water table so that its bottom and sides are typically dry when receiving fluids.

use ground water as a source. Other sensitive ground water areas include additional designated, productive, or vulnerable locations that are critical for the protection of underground sources of drinking water.

The minimum federal requirements would continue to authorize all other kinds of Class V wells by rule as long as (1) they do not endanger USDWs, and (2) the well owners or operators submit basic inventory information. If a Class V well may endanger USDWs or adversely affect public health, UIC Program Directors in the States and EPA Regional Offices can require the owner/operator to apply for a permit, order closure of the well, require remediation, take enforcement action, or prescribe actions to prevent adverse effects. In many States that have received primary enforcement responsibility for the Class V UIC program (called Class V Primacy States), these minimum federal requirements have been supplemented with additional regulations at the State level.

2.2 Summary of Options Considered in the Analysis

2.2.1 Options for Motor Vehicle Waste Disposal Wells

For motor vehicle waste disposal wells, this analysis considers both a categorical ban and a ban with a waiver. As mentioned above, the waiver provision will allow well owners and operators to seek a permit. The analysis also considers how widely the ban or ban with waiver should be applied, evaluating wells in three different areas within affected States and territories:

- Ground water protection areas,
- Ground water protection areas and other sensitive ground water areas, and
- Statewide.

Combining these two considerations, the economic analysis considers the following six options. (Option 2b is being promulgated in the final rule.)

1a) Banning motor vehicle waste disposal wells within ground water protection areas.

1b) Banning motor vehicle waste disposal wells within ground water protection areas, but allowing owners and operators of individual wells in such areas to seek a waiver to keep operating by applying for a permit.

2a) Banning motor vehicle waste disposal wells within ground water protection areas and other sensitive ground water areas.

2b) Banning motor vehicle waste disposal wells within ground water protection areas and other sensitive ground water areas, but allowing owners and operators of individual wells in either kind of area to seek a waiver to keep operating by applying for a permit.

3a) Banning motor vehicle waste disposal wells statewide.

3b) Banning motor vehicle waste disposal wells statewide, but allowing owners and operators of individual wells to seek a waiver to keep operating by applying for a permit.

Obtaining a waiver by receiving a UIC permit allows affected facilities to continue to operate their injection wells if several conditions are met. UIC Program Directors have the flexibility to specify permit requirements but, at a minimum, the permit would have to include the following three conditions. First, owners or operators would have to make sure fluids released in their wells meet the primary drinking water MCLs or other appropriate health-based standards at the point of injection. Second, owners or operators would have to follow specified best management practices (BMPs) for motor vehicle-related facilities. Third, owners or operators would have to monitor the quality of their injectate and sludge (if present in drywells or tanks holding injectate) both initially and on a continuing basis in order to demonstrate compliance with the MCLs. The rule, however, does not specify monitoring requirements that must be followed, leaving those instead to the discretion of the Director to specify in the permit.

2.2.2 Options for Large-Capacity Cesspools

The economic analysis evaluates the following three options for banning large-capacity cesspools. The only difference between these options is the geographic scope of the ban. (Option 3 is being promulgated in the final rule.)

1) Ban large-capacity cesspools within ground water protection areas.

2) Ban large-capacity cesspools within ground water protection areas and other sensitive ground water areas.

3) Ban large-capacity cesspools Statewide.

3. Entities Affected by the Rule

This section describes EPA's characterization of the number and types of entities affected by the rule. Presented first is EPA's process for estimating the number of affected Class V wells, along with the resulting estimates. Next, the industries believed to own and operate these wells are identified.

3.1 Number of Affected Class V Wells

The analysis estimates the number of facilities affected by the final rule based on EPA's 1999 "Class V Study," a comprehensive survey of EPA Regional and State staff responsible for implementing UIC programs.[4] The survey results provide EPA's best estimates of the number of motor vehicle waste disposal wells and large-capacity cesspools for most States and territories, as presented in Appendix A. For certain States and territories, the survey obtained either an unbounded estimate (e.g., "more than 50 wells") or no response. In these cases, the analysis develops modeled estimates appropriate for the given State or territory. Modeled estimates are based on the survey data for States and territories that reported bounded estimates, as follows. First, the model sums (1) the numbers of wells, and (2) the unsewered populations,[5] over all the States reporting bounded data. It then divides the total number of wells by the total unsewered population to calculate an aggregate ratio of wells per thousand people not hooked up to sewers. Finally, this ratio is multiplied by the unsewered population (in thousands) for each State needing a modeled estimate.[6] Summing up the State estimates by well type, the current national estimates are 21,692 motor vehicle waste disposal wells and 9,583 large-capacity cesspools. Appendix B presents the estimate of the total number of motor vehicle waste disposal wells and large-capacity cesspools by state.

---

[4] The study was described in the Notice of Data Availability published by EPA on May 21, 1999 (64 FR 27741).

[5] The model estimates unsewered population using data from EPA's *1996 Clean Water Needs Survey Report to Congress* (U.S. EPA, Office of Water, September 1997). This updates the 1992 Needs Survey data used in the 1998 economic analysis.

[6] The analysis replaces unbounded estimates with modeled estimates only for States where the modeled estimates exceed the unbounded estimates. For example, a modeled estimate of 40 wells is used if the unbounded estimate reported was "more than 10 wells." However, if the unbounded estimate reported was "more than 60 wells," then the analysis uses an estimate of 60 wells rather than the modeled estimate of 40 wells.

EPA believes that the Class V Study data are the best available and that the current well estimates represent an improvement over those reported in the 1998 economic analysis for the proposed rule (63 FR 40586, July 29, 1998).[7] The economic analysis for the proposed rule developed national estimates of the number of wells by employing a number of assumptions,[8] because recent survey data on the number of wells were not available.

These wells comprise the universe of all Class V motor vehicle waste disposal wells and large-capacity cesspools. The number of wells potentially affected by the Class V rule will be fewer, however, depending on (1) existing regulatory and implementation conditions, and (2) whether the wells are located in ground water protection areas or other sensitive ground water areas targeted by the final rule. The following sections describe how these two factors were evaluated.

3.1.1 Accounting for Existing Regulatory Programs

When analyzing Options 1b, 2b, and 3b for motor vehicle waste disposal wells (the ban with waiver options), the analysis excludes motor vehicle waste disposal wells in States with permit programs at least as stringent as the minimum requirements in the final rule. Due to existing State regulatory programs, these wells are assumed to automatically qualify for a waiver from the final rule at no incremental cost to the owner or operator. These wells must be included, however, when evaluating options that would require the wells to be closed (i.e., Options 1a, 2a, and 3a). Similarly, the economic analysis does not include any motor vehicle waste disposal wells or large-capacity cesspools in States that are already in the process of

---

[7] U.S. EPA, *Economic Analysis for the Proposed Revisions to the Class V UIC Regulations,* July 22, 1998.

[8] Based on inventory data in eight States, the 1998 economic analysis identified certain industries (represented by SIC codes) as most likely to use Class V wells. It then assumed that, nationally, each establishment in those industries could use a Class V well. Next, it estimated and subtracted out facilities served by publicly-owned treatment works (POTWs), permitted under the National Pollutant Discharge Elimination System (i.e., discharging to surface waters), closed by EPA Administrative Order, or closed under State wellhead protection programs. (See Appendix II to the 1998 economic analysis.) The analysis further reduced the number of affected wells based on the percentage of non-urban land believed to fall within ground water protection areas and the likelihood of wells falling within ground water protection areas. As described in Section 3.2, the 1998 analysis of potentially affected SIC categories is used in the current analysis for the purpose of characterizing affected industries, but not to estimate the number of affected wells.

banning such wells, because wells in those States would be closed regardless of EPA's rulemaking efforts.

To assess how many motor vehicle waste disposal wells and large-capacity cesspools potentially will be affected under a given option, EPA reviewed State regulations and held discussions with EPA Regional and State staff who are responsible for implementing the Class V UIC program in each State. Based on this research, EPA compiled a summary analysis of the status of each States' Class V UIC programs relative to the regulatory options being considered. This analysis is presented in Appendix C. In a few instances, the summary analysis concludes that a given State's motor vehicle waste disposal well permit program, as currently implemented, would fully ensure that wells would meet the regulatory option that requires continued operation with a permit and compliance with MCLs at the point of injection. In these cases, the economic analysis does not include the State's motor vehicle waste disposal wells when costing this option.

The analysis gives "full credit" for the existing UIC program in a given State only when it is clear that the program is at least as stringent as the final Class V rule requirements. For example, full credit was given for the existing Massachusetts program regulating motor vehicle waste disposal wells (meaning all such wells in Massachusetts were removed from the analysis because they would not be affected by the new rule) because the State already effectively bans these wells statewide. No credit, not even any partial credit, was given to existing State UIC programs that go beyond the existing minimum federal requirements but do not meet the full intent of the new rule.

Accounting for State programs, the estimated numbers of wells potentially affected by the rule are 16,688 motor vehicle waste disposal wells[9] and 2,723 large-capacity cesspools.

3.1.2 Estimating the Number of Wells in Ground Water Protection Areas and Sensitive Ground Water Areas

The analysis then estimates the number of wells actually affected based on whether these wells are located within ground water protection areas or sensitive ground water areas. These estimates were developed in the following way:

[9] This figure represents the number of motor vehicle waste disposal wells potentially affected by the ban options (1a, 2a, and 3a). The number of motor vehicle waste disposal wells potentially affected by the ban/waiver options (1b, 2b, and 3b) is 15,138.

- To estimate the number of wells that fall within ground water protection areas, the analysis first calculates the amount of land in ground water protection areas[10] as a percentage of non-urban land in each State,[11] and then assumes that wells are twice as likely to be located within a ground water protection area as outside a ground water protection area. Specific assumptions and calculations are shown in Appendix D.

- To estimate the number of wells located within other sensitive ground water areas, the analysis considered State-specific data regarding the presence of four settings that often lead to an area being considered sensitive for purposes of ground water protection: sole-source aquifers, shallow unconsolidated aquifers, karst, and fractured bedrock. Specific assumptions and calculations are shown in Appendix E.

EPA recognizes that the number of wells in these areas can range from, on the low end, the number of wells in ground water protection areas to, on the high end, the number of wells in ground water protection areas plus 100 percent of the other sensitive ground water areas. These numbers range from 991 to 11,789 motor vehicle waste disposal wells and from 296 to 7,667 large-capacity cesspools. However, EPA believes that the estimate using 100 percent of the sensitive ground water areas (i.e., the high-end estimate) is too high because the sensitive areas defined for the purpose of this analysis do not account for localized hydrogeologic features such as depth to ground water and the presence of confining layers, which can effectively protect aquifers from the downward migration of contaminants from shallow motor vehicle waste disposal wells and large-capacity cesspools. States are not likely to define as sensitive an area where the localized hydrogeologic features prevent fluid movement into USDWs. Therefore, to account for this uncertainty, EPA's best estimate of the true number of wells that will be affected

---

[10] Unless State Source Water Assessment and Protection Program plans indicated that an alternate distance should be used, the analysis assumes that States will delineate ground water protection areas by using areas of one-half mile radius around water supply wells for ground water community water systems (G-CWS) and of one-quarter mile radius around water supply wells for ground water non-transient non-community water systems (G-NTNCWS). EPA reviewed the plans submitted by all 50 States, the District of Columbia, and Puerto Rico to determine the proposed methods for actually delineating ground water protection areas. When those methods would lead to an area that is clearly larger or smaller than the default assumption, the analysis uses the distance indicated in the plan.

[11] Although ground water protection areas could conceivably be found in urban areas, EPA conservatively assumes that all ground water protection areas are located in non-urban (unsewered) areas.

by the final rule is the mid-point between the low-end and high-end estimates. This equates to 6,390 motor vehicle waste disposal wells and 3,982 large-capacity cesspools.[12]

3.1.3 Estimated Numbers of Affected Wells

The estimated number of motor vehicle waste disposal wells and large-capacity cesspools that are potentially affected by the rule are shown in Exhibit 3-1. As a result of the Class V Study data and estimation methodology (discussed above) and the modified scope of the rule (i.e., as applied to motor vehicle waste disposal wells in other sensitive ground water areas), the number of wells estimated to be affected by the rule has changed relative to EPA's estimates for the proposed rule. The number of affected large-capacity cesspools is now estimated at 2,723 (compared to 55 estimated for the proposed rule). The number of affected motor vehicle waste disposal wells is now estimated at 5,324 (compared to 7,045 estimated for the proposed rule).

Exhibit 3-1
Estimated Number of Affected Wells

	Option 1 (i.e., rule applied in ground water protection areas)	Option 2 (i.e., rule applied in ground water protection areas and other sensitive ground water areas)	Option 3 (i.e., rule applied Statewide)
Motor Vehicle Waste Disposal Wells - Ban (Options 1a, 2a, and 3a)	761	5,699	16,888
Motor Vehicle Waste Disposal Wells - Ban/Waiver (Options 1b, 2b, and 3b)	746	5,324*	15,138
Large-Capacity Cesspools	86	1,179	2,723*

* Estimated number of wells affected by the final rulemaking option.

[12] These figures do not account for the existing regulatory programs discussed in Section 3.1.1. If existing regulatory programs are also considered, the resulting figures would be the same as those discussed in Section 3.1.3.

3.2 Affected Industries

This section discusses how the analysis determined the Standard Industrial Classification (SIC) categories containing Class V wells. Note that the final rule, unlike the proposed rule, does not apply to industrial waste disposal wells. The analysis described in this section, however, was conducted in support of the proposed rule. Consequently, it addresses industrial waste disposal wells, even though industrial wells are not affected by the final rule or considered in the remainder of the analysis.

To identify industries that use Class V waste disposal wells, several sources of data were reviewed extensively. First, EPA reviewed the *Class V Injection Well Regulatory Impact Analysis and Regulatory Flexibility Analysis* (September 6, 1994 Draft) to determine the SIC categories that represent industries likely to use Class V waste disposal wells.

EPA also considered detailed inventory data (collected between 1991 and 1997) from West Virginia, Kansas, Nebraska, New Hampshire, Illinois, Montana, Pennsylvania, and Virginia. On the whole, data from these eight states are sufficiently detailed to allow EPA to determine the SIC codes for many facilities with Class V waste disposal wells. More important, these eight states are sufficiently representative of the United States as a whole based on two ratios. First, the aggregated sample ratio of industries to population across all eight states (0.57) is nearly identical to that of the entire country (0.56).[13] Second, the percentage of urban land in the sample states (2.24 percent) is very close to that of the entire United States (2.46 percent). On the basis of this observation, EPA believes these eight sample states adequately represent the entire country for the purposes of identifying commercial and industrial facilities that are likely to use Class V waste disposal wells.

Using State and EPA Regional inventory data, an SIC category is included in the analysis if it appears at least once in at least three of the eight sample States. Because it is infeasible to assess the prevalence of Class V waste disposal well use in every industry, EPA is taking this approach to provide a "reasonable" basis for determining representative SIC categories for purposes of the economic analysis. EPA conducted sensitivity analyses under the alternative

---

[13] In computing the industry-to-population ratio, only industries (57 SIC categories) which appear once in at least 3 of the 8 state inventories are used. The ratio for the selected states is calculated as ((sum of all facilities in the 8 selected states)/(sum of population in the 8 states))*100 = .57, whereas the ratio for the United States is calculated as ((estimated number of facilities in U.S.)/(U.S. population))*100=.56 (see Appendix II of the 1998 economic analysis for the estimated number of facilities in each state for the SIC categories used in the analysis. The population figures used are from 1992 U.S. Bureau of Census Data).

assumptions that an SIC category should be included if it is found at least once in two, and then in four, of the eight states.[14] The results of the sensitivity analyses indicate that the approach taken in this analysis is robust and yields consistent results.

Exhibit 3-2 shows the selected SIC categories along with the approximate number of affected entities estimated within each category. The analysis assumes that the number of wells within each category is proportional to the relative number of total establishments in each SIC category.[15] The analysis also assumes that wells are distributed across the maximum number of facilities (i.e., a different owner or operator is assumed for each well).

Large-capacity cesspools are not necessarily related to any specific industrial or commercial operations; they may occur in a variety of residential, recreational, or commercial settings. Based on inventory data from West Virginia, the majority of large-capacity cesspools are located in state parks and campgrounds, with a very small fraction distributed among a few industrial and commercial establishments. This understanding is reinforced by public comments on the proposed rule. Due to the lack of data on the users of large-capacity cesspools, they are not included in the SIC category-specific analysis.

[14] Detailed results of these sensitivity analyses are provided in Addendum 1 to the 1998 economic analysis.

[15] The number of total establishments in each SIC category was taken from 1992 Bureau of Census data on industrial and commercial establishments.

Exhibit 3-2
SIC Categories with Motor Vehicle Waste Disposal Wells Affected by the Final Rule

SIC	SIC Description	Affected Facilities (approximate)
4142	Bus charter service, except local	10
4212	Local trucking, without storage	573
4213	Trucking, except local	469
4581	Airports, flying fields, and airport terminal services	37
5015	Motor vehicle parts, used	83
5511	Motor vehicle dealers (new and used)	280
5521	Motor vehicle dealers (used only)	214
5531	Auto and home supply stores	474
5541	Gasoline service stations	1,210
7514	Passenger car rental	56
7515	Passenger car leasing	11
7532	Top, body and upholstery repair shops and paint shops	402
7533	Auto exhaust system repair shops	63
7537	Automotive transmission repair shops	72
7538	General automotive repair shops	744
7539	Automotive repair shops, nec	118
7549	Automotive services, except repair and carwashes	125
9111	Municipal and solid waste Township management and Road Facilities	381
Totals		5,322

4. Costs of the Rule

This section presents a detailed discussion of the methodology and assumptions used to estimate compliance costs for motor vehicle waste disposal wells and large-capacity cesspools, including the sources and application of cost data and the design of the cost model. This section also summarizes costs to States and EPA, presents the cost results, and discusses limitations of the analysis.

As noted in Section 2.2, this analysis estimates costs for six different regulatory alternatives addressing motor vehicle waste disposal wells, and for three different alternatives for large-capacity cesspools:

Motor Vehicle Waste Disposal Wells

1a) Banning motor vehicle waste disposal wells within ground water protection areas.

1b) Banning motor vehicle waste disposal wells within ground water protection areas, but allowing owners and operators of individual wells in such areas to seek a waiver to keep operating by applying for a permit.

2a) Banning motor vehicle waste disposal wells within ground water protection areas and other sensitive ground water areas.

2b) Banning motor vehicle waste disposal wells within ground water protection areas and other sensitive ground water areas, but allowing owners and operators of individual wells in either kind of area to seek a waiver to keep operating by applying for a permit.

3a) Banning motor vehicle waste disposal wells statewide.

3b) Banning motor vehicle waste disposal wells statewide, but allowing owners and operators of individual wells to seek a waiver to keep operating by applying for a permit.

Large-Capacity Cesspools

1) Ban large-capacity cesspools within ground water protection areas.

2) Ban large-capacity cesspools within ground water protection areas and other sensitive ground water areas.

3) Ban large-capacity cesspools Statewide.

The basic costs elements associated with the motor vehicle options and the cesspool options are described in Sections 4.1 and 4.2. This followed by a discussion of the approach for estimating costs to States and EPA (Section 4.3), the cost results (Section 4.4), and the limitations of the analysis (Section 4.5).

4.1 Costing Methodology for Motor Vehicle Waste Disposal Wells

This section starts with an overview of the methodology used to calculate compliance costs associated with motor vehicle waste disposal wells. It then describes the individual compliance costs. Next, this section discusses how the individual compliance cost elements are combined to estimate average facility costs. Finally, it discusses how the analysis computes the total cost to owners and operators of motor vehicle waste disposal wells nationally.

4.1.1 Overview

To comply with the ban options (Options 1a, 2a, and 3a), owners and operators of motor vehicle waste disposal wells are assumed to: implement best management practices (BMPs) to reduce both the volume and toxicity of wastewater; physically close the well (put in a permanent plug or some other sort of permanent seal); send future wastewater offsite (i.e., the wastewater that can no longer be disposed through the well) to a publicly-owned treatment works (POTW), to an industrial/commercial wastewater treatment facility (WWTF), or to a recycler via a "waste exchange" arrangement; conduct soil sampling; and (if needed) undertake remediation, additional sampling, and off-site disposal of remediation wastes at an appropriate facility. These activities are summarized in flowchart form in Exhibit 4-1.

The compliance process under the ban/waiver options (Options 1b, 2b, and 3b) is summarized in Exhibit 4-2. Under these options, owners and operators implement BMPs and then sample their injectate to determine whether the injectate meets MCLs. If the injectate does not meet MCLs, the well must be closed as discussed above, thereby incurring the other costs noted above. However, if the injectate does meet MCLs, owners and operators may seek a permit allowing them to continue operating the well. The analysis assumes that permits will entail periodic injectate and sludge sampling, as well as proper disposal of sludge when liquid from the sludge exceeds MCLs.

To determine the cost of this rule for a particular well owner, certain information about the injectate and the facility must be known. This information would ideally include quantity of injectate, general composition of injectate, injectate contaminant levels, location of facility relative to off-site treatment facilities and sewer systems, extent of soil contamination (if any),

Exhibit 4-1

Compliance Process for Ban Options (Motor Vehicle Wells)

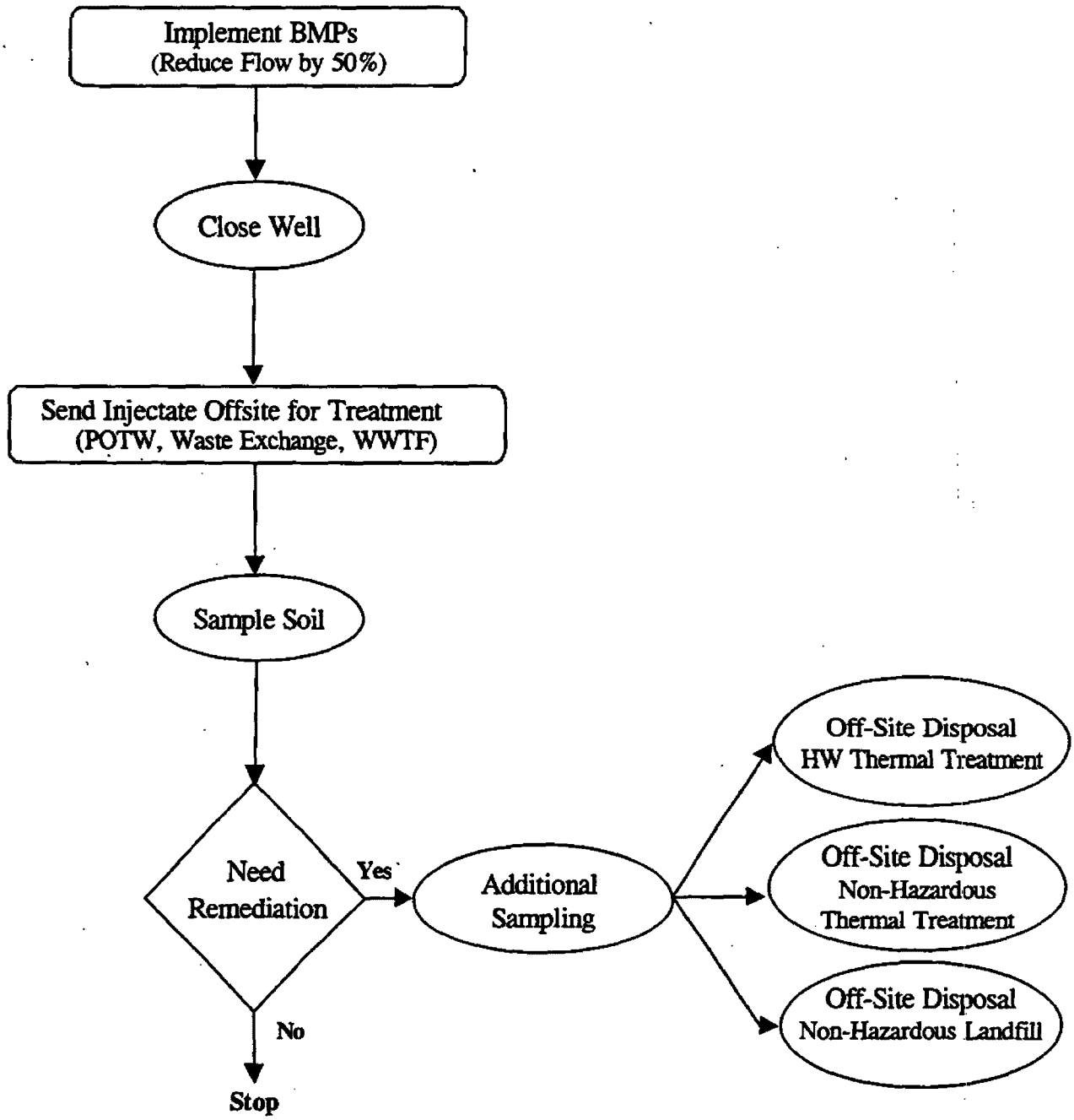
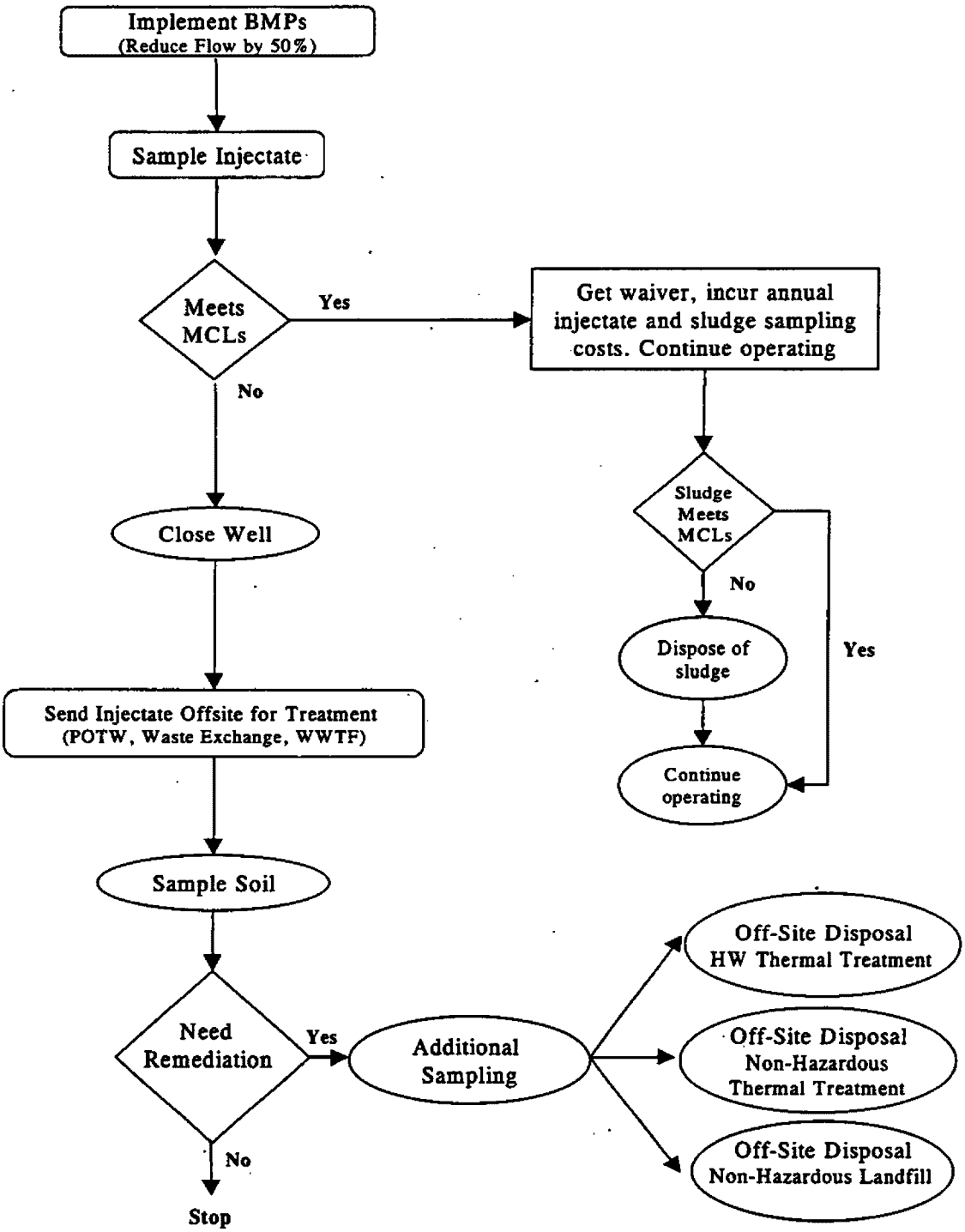


Exhibit 4-2
Compliance Process for Ban with Waiver Options (Motor Vehicle Wells)



and current wastewater minimization practices. The nature of the injectate, for example, is an important determinant of costs associated with sampling and implementing BMPs.

Because this type of detailed information is not available for the individual wells affected by this rule but rather is known more generally for the affected universe, EPA has made assumptions and assigned probabilities to determine the cost of the rule to average wells within each of the representative motor vehicle four-digit SIC codes identified in Section 3.2. To capture the spread of expected conditions, EPA has modeled 12 different waste stream types defined by several variables (flow rate; levels of organics, oils, and greases; presence of metals). EPA then assigned to all facilities within a given four-digit SIC code one or more waste stream types (as discussed in Section 4.1.2). Similarly, EPA defines three different levels of best management practices will be implemented by owners and operators of motor vehicle waste disposal wells and assigned one to each four-digit SIC code (See Section 4.1.3).

The analysis calculates weighted average compliance costs to address the different costs that may be incurred by different owners and operators. Within the ban with waiver options, for example, EPA estimates that 72.5 percent of all motor vehicle waste disposal wells would qualify for and receive a permit to keep operating, and the remaining 27.5 percent would close (this estimate is discussed in more detail below). The analysis uses this estimate to calculate an average cost, by adding 72.5 percent of the total costs incurred by a facility with a permit to keep operating to 27.5 percent of the total costs incurred by a facility that closed its well. EPA used this weighted average approach to apportion costs whenever some facilities will respond to the rule in one manner and other facilities will respond in another manner. Exhibit 4-3 and Exhibit 4-4 show the percentages and costs applied to derive the "average" facility cost to motor vehicle waste disposal wells under, respectively, the ban options (Options 1a, 2a, and 3a) and the ban with waiver options (Options 1b, 2b, and 3b). These exhibits also indicate which costs are variable (such as monitoring costs) and which costs are fixed. The derivation of these costs is described in subsequent sections.

Assumptions Under the Ban Options (1a, 2a, and 3a) - Exhibit 4-3

Under the ban options (1a, 2a, and 3a), 100 percent of motor vehicle waste disposal wells will close. Accordingly, all of these wells will incur well closure costs. At the same time, owners and operators of the associated facilities are assumed to implement BMPs and will have to send their waste off-site for treatment and/or disposal at one of the following types of facilities: a publicly-owned treatment work (POTW), waste exchange, non-hazardous waste treatment facility, or hazardous waste treatment facility. The selection of the type of facility is based on the waste stream type, and is discussed in Section 4.1.8. The analysis conservatively assumes that all well owners will sample their soil to determine if contamination has occurred, even though such sampling is not specifically required under this rule. It assumes that 35 percent

Exhibit 4-3

Percentages and Costs Used to Derive Average Facility Costs Under the Ban Options (Motor Vehicle Wells)

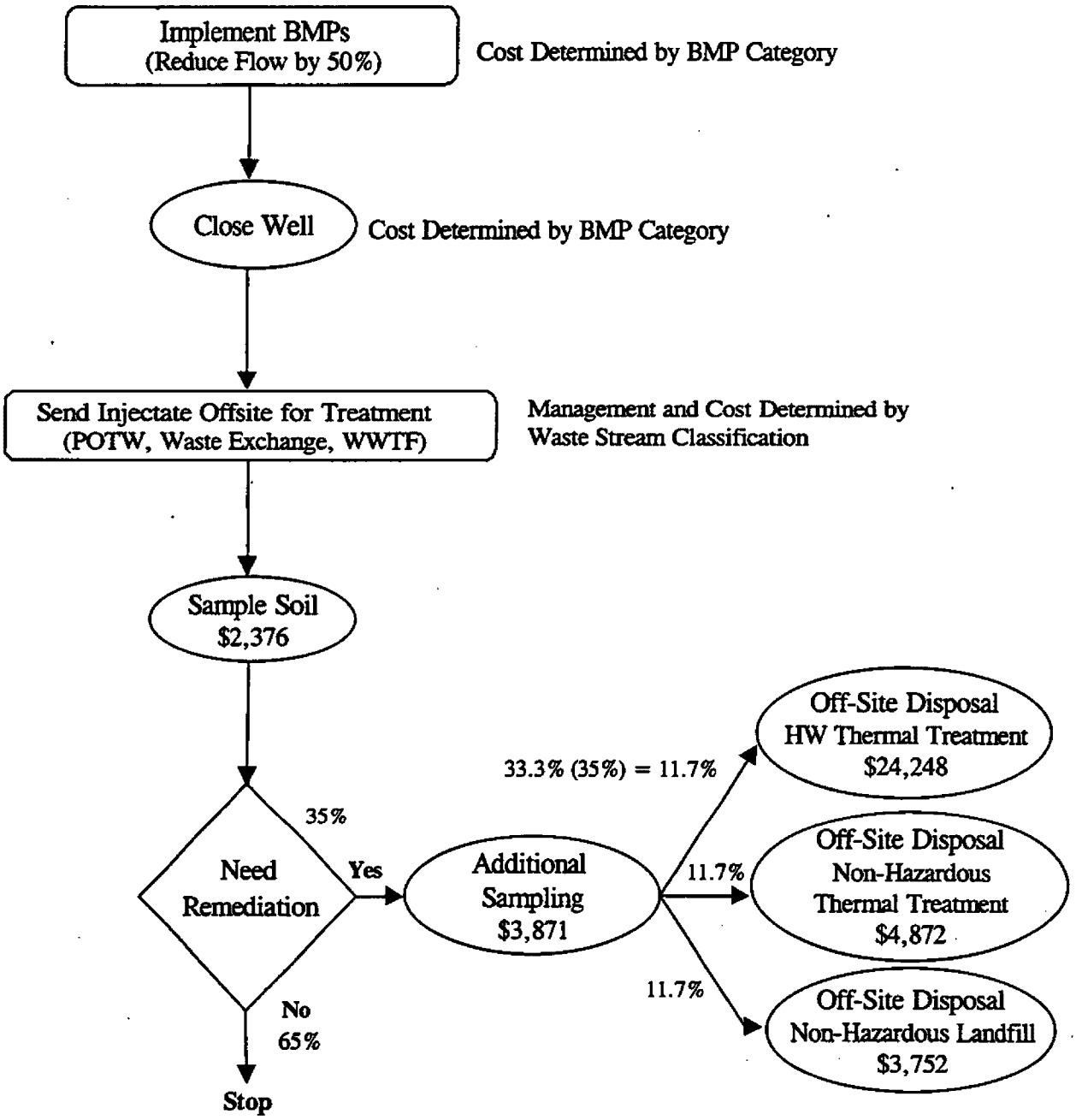
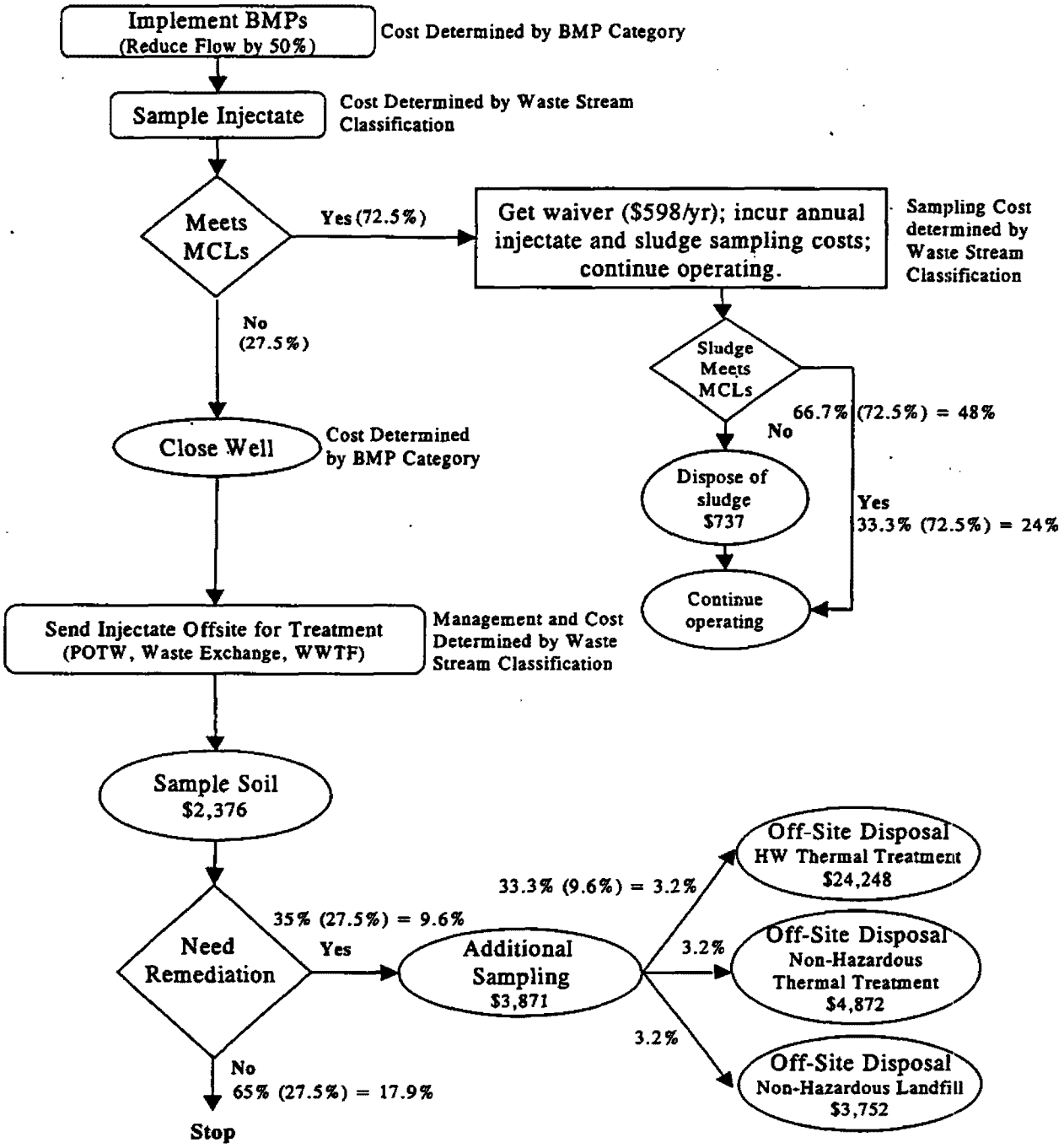


Exhibit 4-4
Percentages and Costs Used to Derive Average Facility Costs Under the Ban with Waiver Options (Motor Vehicle Wells)



of well owners will discover contamination and remediate their site. Contaminated soil will be disposed at one of the following types of facilities: a hazardous waste thermal treatment facility, a non-hazardous waste thermal treatment facility, or a non-hazardous waste landfill. Facilities will re-sample to confirm that cleanup is complete. Soil at one third of the facilities that must remediate (or 11.7 percent of the total facilities) is assumed to be hazardous and disposed at a hazardous waste thermal treatment facility. The remaining two thirds of the facilities that remediate will be evenly divided between the two types of non-hazardous waste facilities (i.e., 11.7 percent of the total facilities will dispose of contaminated soil at non-hazardous thermal treatment facilities, and 11.7 percent of the total facilities will dispose of contaminated soil at non-hazardous landfills).

Assumptions Under the Ban/Waiver Options (1b, 2b, and 3b) - Exhibit 4-4

Under the ban with waiver options (1b, 2b, and 3b), 100 percent of motor vehicle facilities with wells are assumed to implement BMPs. All of these well owners will then test their injectate and liquids from their sludge to determine if each meets MCLs. EPA assumes that 72.5 percent will meet MCLs at this point and will apply for and receive a permit to keep operating. The remaining 27.5 percent of facilities will not meet MCLs and will close their wells. These percentages (72.5 percent and 27.5 percent), which were also used in the economic analysis of the proposed rule, were derived using data on industrial wells (discussed below).

Data from an EPA Region 5 survey suggest that a relatively high percentage of Class V industrial waste disposal wells meet MCLs at the point of injection. Additional data from EPA Region 9 also supports this observation. These two data sources indicate that between 45 percent and 75 percent of industrial wells meet MCLs at the point of injection.[16] Using the more conservative of these two estimates, EPA assumed that only 45 percent of industrial wells would meet MCLs without implementing BMPs. EPA then assumed that of the remaining 55 percent, half (or 27.5 percent) would meet MCLs if BMPs were implemented and the other half (27.5 percent) would not meet MCLs and would have to close. Because EPA believes there is a fundamental difference in the injectate characteristics and baseline operating practices at motor vehicle facilities, EPA has conservatively assumed that no motor vehicle facilities will be able to meet MCLs without implementing BMPs. However, once these BMPs are implemented at motor vehicle facilities, EPA estimates that the percentage of motor vehicle facilities that will be able to meet MCLs will be the same as the total percentage of industrial wells that would

[16] Information from sampling data and presentation from EPA Region 5 (September 1995) and Memorandum from EPA Region 9 (June 1992) indicate that among 87 sample wells that pass toxicity characteristics, only 23 did not meet MCLs. The lower bound (45 percent) is estimated based solely on EPA Region 5 data.

ultimately meet MCLs (i.e., after implementing BMPs, if necessary). Thus, a total of 72.5 percent of motor vehicle waste disposal wells are assumed to be able to meet MCLs, and 27.5 percent are assumed to be unable to meet MCLs and to close.

Of the 72.5 percent of total motor vehicle waste disposal wells that are assumed to meet MCLs and obtain a permit (in the ban with waiver options), all are assumed to monitor the injectate quarterly for the first three years and annually thereafter. These wells will also sample liquids from their sludge annually. In the initial sludge sample, one third of these wells (about 24 percent of all motor vehicle waste disposal wells) will have liquid from sludge that meets MCLs, and will not incur further costs. The remaining two thirds of the wells (or 48 percent of total motor vehicle waste disposal wells) will have liquid from sludge that does not meet MCLs and will need to dispose of their sludge. In subsequent years, the sludge from all wells is assumed to meet MCLs.

Of the 27.5 percent of total motor vehicle waste disposal wells that are assumed to close because they are unable to meet MCLs, all will incur well closure costs (to physically seal off the well). All of these wells will send waste off-site for treatment, sample soil, and remediate if necessary. Thirty-five percent of the wells that close (or 9.6 percent of the total wells) will remediate soil. As described above, one third of these wells that remediate (or 3.2 percent of the total wells) will dispose of the soil in a hazardous waste thermal treatment facility, one third (or 3.2 percent of the total wells) will dispose of the soil in a non-hazardous waste thermal treatment unit, and one third (or 3.2 percent of the total wells) will dispose of the soil in a non-hazardous waste landfill.

4.1.2 Waste Stream Characterization

To account for the diversity of waste stream characteristics, EPA developed 12 model waste streams, based on flow rate, levels of organic constituents (along with oils and greases), and presence of metal constituents. These groupings were assigned letter labels (A, B, C, D, E-1, E-2, F-1, F-2, G, H, I, or J), as shown in Exhibit 4-5.

Waste stream types A, B, C, D, G, H, I, and J generally represent the characteristics and flow rates of industrial waste, while E-1, E-2, F-1, and F-2, which contain oil and grease, generally represent the characteristics and flow rates of motor vehicle waste. EPA used best professional judgment to estimate which of these waste stream types were likely to be found at motor vehicle facilities in each of the 18 representative motor vehicle SIC codes. These assignments are summarized in Exhibit 4-6.

Motor vehicle waste disposal wells within some of the SIC categories have low and high flow rates. In the absence of flow data on individual wells, half of the wells in these SIC

Exhibit 4-5
Waste Stream Groupings for Estimating Compliance Costs

Group Label	Annual Flow Rate	Waste Characterization		
		Organics		Metals
		Low	High	
A	Low	X	-	-
B	Low	-	X	-
C	Low	X	-	X
D	Low	-	X	X
E1	Low	X*	-	-
E2	Low	-	X*	-
F1	High	X*	-	-
F2	High	-	X*	-
G	High	X	-	-
H	High	-	X	-
I	High	X	-	X
J	High	-	X	X

* These waste streams, which best represent motor vehicle waste fluids, are likely to contain oil and grease in addition to other organics.

categories are assumed to have low flow rates, and half are assumed to have high flow rates. The automotive service-related facilities are divided into two categories: service-related facilities with a low flow rate of 2,000 gallons per year, represented by scenarios E1 and E2, and dealerships with a high flow rate of 20,000 gallons per year, represented by scenarios F1 and F2. Because a few of the motor vehicle SIC codes are more like industrial facilities than service stations, several of these SIC codes are assigned waste stream types more typically associated with industrial wells (e.g., SIC code 5531).

Exhibit 4-6
Waste Stream Characterization and Best Management Practice Category by SIC Code

SIC Code	Description	Flow Rate/ Waste Category*	BMP** Category
4142	Bus charter service, except local	E1, E2	2
4212	Local trucking, without storage	E1, E2	2
4213	Trucking, except local	E1, E2	2
4581	Airports, flying fields, and airport terminal services	C, D, I, J	3
5015	Motor vehicle parts, used	F1, F2	2
5511	Motor vehicle dealers (new and used)	F1, F2	2
5521	Motor vehicle dealers (used only)	F1, F2	2
5531	Auto and home supply stores	A, G	1
5541	Gasoline service stations	E1, E2	2
7514	Passenger car rental	E1, E2	2
7515	Passenger car leasing	F1, F2	2
7532	Top, body and upholstery repair shops and paint shops	E1, E2	2
7533	Auto exhaust system repair shops	E1, E2	2
7537	Automotive transmission repair shops	E1, E2	2
7538	General automotive repair shops	E1, E2	2
7539	Automotive repair shops, NEC	E1, E2	2
7549	Automotive services, except repair and carwashes	A, B, G, H	2
9111	Executive offices	A, G	1

* See Exhibit 4-5
** Categories 1, 2, and 3 denote "Good Housekeeping," "Parts Washers," and "Solvent Recovery Unit," respectively. See Exhibit 4-7.

4.1.3 Best Management Practices

Under the ban with wavier options (1b, 2b, and 3b), owners or operators of all motor vehicle waste disposal wells are expected to implement BMPs to improve the quality of their injectate enough to meet MCLs, and to reduce the quantity of wastewater that will need to be disposed. BMP costs are classified in three categories, based on the waste type (organic or organic with metals) and the type of manufacturing or service industry generating the waste (i.e., whether single or multiple process steps are typically involved). The BMPs are classified as "good housekeeping" in Category 1, "parts washing" in Category 2, and "solvent recovery" in Category 3. These categories are developed to account for the process complexity among the

different establishments represented in the analysis, from simple repair shops to complex, multi-stage operations.

As shown in Exhibit 4-6, each four-digit SIC code is assigned to a BMP category based on the type of waste generated and the complexity of facility processes. For example, single-purpose service facilities will incur lower BMP costs than complex, multi-stage servicing facilities (e.g., airports). Capital and operation and maintenance (O&M) costs differ for each BMP category. Exhibit 4-7 presents the components of capital and O&M costs for each category.

Facilities in SIC categories assigned to BMP category 1 incur costs for the implementation of general housekeeping practices. These practices include spill collection devices, improved handling practices, and labeling and inventory controls. Service industries such as retailers (e.g., auto parts stores - SIC code 5531) are assumed to require a minimal level of BMPs and are assigned costs related to good housekeeping practices. Total capital costs for good housekeeping are $1,727 and O&M costs are $1,267 per facility. A detailed breakdown of these costs is presented in Appendix VI.C of the 1998 economic analysis.

The majority of motor vehicle service-related facilities are assigned BMP costs which include the installation of parts washers and the adoption of good housekeeping practices (category 2). Total costs for parts washing are $7,484 in capital investments and $1,686 for O&M.

Airports, flying fields, and airport terminal services (SIC code 4581) are assigned to BMP category 3. These facilities are likely to generate wastes that include organic solvents. This category includes costs for the installation of solvent recovery systems in addition to adopting good housekeeping measures. Total capital costs for solvent recovery are $26,966 and O&M costs are $4,606 per facility.

4.1.4 Injectate and Sludge Monitoring

Under the ban options (1a, 2a, and 3a), there are no injectate or sludge sampling or analysis costs. Under the ban with waiver options (1b, 2b, and 3b), the injectate must be sampled initially to determine if the well would qualify for a permit to keep operating. If the injectate meets MCLs during the initial sampling, the well is assumed to receive a permit that requires quarterly injectate sampling for the first three years, and annual injectate sampling

Exhibit 4-7
Descriptions of BMP Processes for Each SIC Code by BMP Category

BMP Category	SIC Codes	BMP Process Description	
		Capital	O&M
1 (Good house-keeping)	5531, 9111	1. Install collection devices 2. Improve handling process Total capital costs = $1,727	1. Labels/inventory 2. Keep floor clean 3. Improve handling process Total O&M costs = $1,267
2 (Parts washer)	4142, 4212, 4213, 5015, 5511, 5521, 5541, 7514, 7515, 7532, 7533, 7537, 7538, 7539, 7549	1. Install collection devices 2. Recycle wastes in on-site solvent units 3. Improve handling process Total capital costs = $7,484	1. Labels/inventory 2. Recycle wastes in on-site solvent units 3. Keep floor clean 4. Improve handling process Total O&M costs = $1,686
3 (Solvent recovery unit)	4581	1. Install collection devices 2. Keep floors clean 3. Mechanical devices for material removal 4. Improve handling process 5. Install built-in distillation unit 6. Operate distillation unit Total capital costs = $26,966	1. Labels/inventory 2. Keep floor clean 3 Improve handling process 4. Pre-washing 5. Maintain and calibrate equipment 6. Inspect repair gaskets 7. Inspect air relief valves 8.Inspect baffle assembly bi-weekly Total O&M costs = $4,606

thereafter.[17] Annual sludge sampling will also be required. If liquid within the sludge does not meet the MCLs, the sludge must be removed and properly disposed. If during the initial sampling, the injectate does not meet MCLs, EPA assumes the well will not receive a permit and will close.

Initial injectate monitoring costs include the labor costs for sampling, analysis costs, and recordkeeping costs. These costs depend on the waste stream constituents and range from $493 to $647 per well annually. Waste stream types A, B, G, and H, which contain only organic constituents, incur a total monitoring cost of $493 per well. Waste stream types C, D, I, and J, which contain organic and metal constituents, incur a total cost of $647 per well. Waste stream types E-1, E-2, F-1, and F-2, which contain only organic constituents, incur a total cost of $586 per well. (These waste stream types are likely to contain oil and grease, and are therefore slightly

[17] Specific permit conditions will be developed by Primacy States and EPA Regional offices. For the purposes of this analysis, EPA assumes reasonable permit conditions to protect underground sources of drinking water.

more expensive than waste stream types A, B, G, and H.) These sampling costs include contacting a laboratory, supervising sampling, analysis by the laboratory, reporting, and recordkeeping.

The annual cost of ensuring that a motor vehicle waste disposal well is in compliance includes quarterly injectate sampling at $1,658 to $2,272 for the first 3 years and annual injectate sampling at $493 to $647 in subsequent years (i.e., if injectate consistently meets MCLs over the first three years). The annual sampling cost for sludge is estimated at $1,192 per facility. Appendix F details the sampling and monitoring costs associated with the demonstration of continuous compliance for motor vehicle waste disposal wells.

4.1.5 Sludge Disposal

If the liquid extracted from the sludge exceeds the MCLs, the sludge must be removed and disposed of properly prior to continuous injection. The cost associated with removing and disposing of sludge from a motor vehicle waste disposal well is estimated at $737 (one-time cost).

4.1.6 Permit Applications

Under the ban with waiver options, 72.5 percent of facilities are expected to apply for and qualify for a permit to continue operating based on assumptions that their injectate will meet MCLs after BMPs have been implemented. These facilities will need to apply to their EPA Regional office or State for a permit. Requirements for permit application may vary by State. Nonetheless, EPA assumes that these facilities will incur a one-time permit application cost of $1,300, which covers labor associated with preparing and submitting the permit application.

4.1.7 Well Closure

Unit compliance costs associated with well closure includes pre-closure notification, well closure costs, and contractor oversight.

Pre-Closure Notification

Costs associated with reporting well closures are included in the analysis for all wells that must close, assuming a simple notification procedure. Owners and operators are required to notify the UIC Program Director of their intent to close their wells at least 30 days prior to closure. An optional form, "Class V Well Pre-Closure Notification Form" (OMB #XX), may be used. The pre-closure notification costs incurred by owners and operators are estimated at $41 per well, which includes the cost of labor.

Well Closure Costs

Closure costs were derived for drywells and septic systems to provide a range of estimates. These costs are applied according to well closure complexity, which is related to operating process complexity. Therefore, SIC codes in BMP categories 1 and 2 (i.e., good housekeeping and parts washing) are assigned the lower of the two well closure costs, while the higher well closure cost is assigned to wells in BMP category 3 (i.e., solvent recovery).

The well closure cost components include pipe flushing, pipe plugging, wastewater disposal, and well backfilling. The average closure cost of a motor vehicle waste disposal well with organic wastes is assumed to be $1,293. Closure costs increase to $3,480 per well if the pipes need to be filled with grout, as in cases involving solvent recovery. Owners and operators of facilities that close their wells will also incur costs associated with soil sampling and analysis to detect possible contamination. The annualized cost of oversight and sampling is estimated to be $365 per motor vehicle waste disposal well. Individual components of well closure cost and the associated unit costs are given in Appendix VI.D of the 1998 economic analysis.

Contractor / Engineering Oversight

The rule does not require hiring consultants or engineers to oversee closure. Since the publication of the 1998 proposed rule, however, EPA has received data indicating that some motor vehicle facilities do in fact hire consultants or engineers to oversee closure. In response to these data, EPA has added a prorated cost of hiring a consultant or engineer, as discussed below.

EPA obtained additional well closure cost data from EPA Region 2, as well as cost data submitted by the Penske Truck Leasing Company (Penske). EPA also received cost data submitted during the public comment period for the proposed rule by the American Trucking Association (ATA). EPA compared these data to the costs in the 1998 economic analysis. Specific cost elements (e.g., contaminated soil disposal fees) used in the economic analysis were compared to the corresponding cost elements found in cost data from the three sources. Average costs were used when various cost estimates were available. Some cost elements could not be compared to cost elements reported in the new sources (ATA, Penske, EPA Region 2) because the new sources presented only aggregated costs or they categorized costs in a different manner.

EPA's cost comparison and analysis of the new data indicated that the closure cost estimates used in the 1998 economic analysis were reasonable or even overestimated the cost of some activities. However, the comparison also revealed that trucking companies, such as Penske, hire contractors, consultants, and/or engineers to oversee well closure. The average cost reported for this oversight was $2,713.

Exhibit 4-8
Assumed Distribution of Off-Site Management Alternatives by Waste Stream Type

Waste Stream Type	Waste Characterization			Percentages of Facilities Selecting Off-Site Management Alternatives			
	Annual Flow Rate*	Organics	Metals	POTW	Waste Exchange	Treatment Facilities	
						Hazardous	Non-Haz.
A	780 gal/yr	Low	-	50%	-	-	50%
B	780 gal/yr	High	-	25%	50%	25%	-
C	780 gal/yr	Low	Yes	50%	-	-	50%
D	780 gal/yr	High	Yes	N/A**	50%	50%	-
E1	1,000 gal/yr	Low	-	50%	-	-	50%
E2	1,000 gal/yr	High	-	25%	50%	25%	-
F1	10,000 gal/yr	Low	-	50%	-	-	50%
F2	10,000 gal/yr	High	-	25%	50%	25%	-
G	5,200 gal/yr	Low	-	50%	-	-	50%
H	5,200 gal/yr	High	-	25%	50%	25%	-
I	5,200 gal/yr	Low	Yes	50%	-	-	50%
J	5,200 gal/yr	High	Yes	N/A**	50%	50%	-

* Annual flow rate after BMPs are implemented. BMPs are assumed to reduce flow rate by 50 percent.
** POTW option is not available for this scenario due to the high concentration of waste.

- All waste stream types with high relative waste concentrations (i.e., waste stream types B, D, E2, F2, H, and J) are assumed to require treatment as a hazardous waste when sent to a treatment facility.

- Waste exchanges are assumed to be impractical for waste stream types characterized by a relatively low organic concentration (i.e., waste stream types A, C, E-1, F-1, G, and I) due to diluted waste quality.

EPA considered the scope and context of these new data, and determined that a limited number of facilities would choose to hire the servies of contractors, consultants, and/or engineers (i.e., approximately 10 percent of the motor vehicle waste disposal wells are likely to incur this new cost). For example, larger facilities that perform truck maintenance and truck washing may generate a larger amount of wastewater, with different wastewater constituents, than most smaller automobile service facilities; therefore, the facilities might have a larger or different type of Class V well. In addition, more extensive contamination might occur at such sites, requiring more extensive well closure activities, which in turn might lead to higher well closure costs. Well closures and clean-ups performed voluntarily by the facility owner (e.g., to obtain an optional no-liability verification letter from the State environmental authority) or as a result of a notice of violation or EPA Administrative Order could be more extensive than would be required by the new Class V rule. Therefore, EPA has added a prorated average cost (10 percent of $2,713, or $271) of hiring consultants and/or engineers to the analysis.

4.1.8 Off-Site Treatment and Disposal

Owners and operators of waste disposal wells that must be closed will incur costs associated with off-site waste disposal. A number of alternative management options are available, including transporting wastewater to POTWs, using a waste exchange, or transporting wastewater to off-site treatment facilities.[18, 19] Off-site management alternatives are based on waste stream characteristics and are summarized in Exhibit 4-8. This exhibit illustrates the assumed management preferences (in percentage) of well owners that generate a particular waste stream type. For example, 50 percent of the well owners that generate waste stream type E-1 will send their waste to a POTW and the other 50 percent will send their waste to a non-hazardous waste treatment facility.

The percentages shown in Exhibit 4-8 are based on the following assumptions:

- All waste stream types with relatively high organic concentrations (i.e., waste stream types B, D, E2, F2, H, and J) are assumed to be candidates for waste exchange (e.g., organic solvent re-use and recycling).

---

[18] The analysis assumes that connection to a sewer is not an available wastewater disposal option. This will, in fact, be the case for at least most wells located in rural areas, but it is not likely to be the case for all wells. Consequently, the analysis overstates the compliance costs of the rule as a result of this assumption.

[19] On-site treatment is always more expensive than off-site treatment and disposal, and is therefore never used in the cost analysis. A discussion of on-site treatment costs can be found in Appendix G.

flow rates by 10 to 40 percent, parts washer and solvent recovery units reduce flow rates by 40 to 80 percent, and process modifications reduce flow rates by approximately 50 percent. However, given the variability in the processes and operations within each SIC category, the current analysis reduces all flow rates by 50 percent. A summary of waste stream scenario compliance costs is provided in Exhibit 4-9, and a detailed breakdown of the cost components is given in Appendix VI.E in the 1998 economic analysis.

Exhibit 4-9
Costs of Off-Site Management of Waste Streams By Type

Waste Stream Type	Percent Affected	POTW		Waste Exchange		Wastewater Treatment Facility	
		Capital ($)	O&M ($/yr)	Capital ($)	O&M ($/yr)	Capital ($)	O&M ($/yr)
A	8.62	2,449	1,462	NA	NA	2,210	2,068
B	0.59	2,449	1,462	4,061	789	1,865	6,304
C	0.18	2,805	783	NA	NA	2,210	2,068
D	0.18	NA	NA	4,417	1,449	1,865	6,304
E1	34.92	2,504	783	NA	NA	2,210	2,409
E2	34.92	2,648	1,174	4,951	1,237	2,210	6,766
F1	5.52	6,074	1,580	NA	NA	5,780	16,728
F2	5.52	6,218	1,971	8,521	2,031	5,780	25,666
G	8.62	6,019	735	NA	NA	5,780	8,919
H	0.59	6,019	735	6,842	730	3,264	15,586
I	0.18	6,375	791	NA	NA	5,780	8,919
J	0.18	NA	NA	10,059	9,087	3,264	15,586

4.1.9 Soil Sampling and Remediation

Owners and operators of all waste disposal wells that are required to close are assumed to incur soil sampling and analysis costs of $3,871. If the soil around a well or septic system is found to be contaminated, the soil is assumed to be removed and disposed of properly. Based on the information from the 1991 National Administrative Order (AO) Closure Database on motor vehicle waste disposal wells, of the 135 facilities that submitted detailed reports, 47 facilities needed soil remediation. Therefore, 35 percent of the closed wells are estimated to need soil remediation.

EPA anticipates that affected businesses will excavate leach fields (a component of septic systems) or the area surrounding dry wells. EPA also assumes these wells will re-sample after

- All waste stream scenarios with relatively low organic concentrations (i.e., waste stream types A, C, E-1, F-1, G, and I) are assumed to require treatment as a non-hazardous waste when sent to a treatment facility.

- POTWs will not accept wastewater that has high levels of both organics and metals (i.e., waste stream types D and J).

- When more than one management alternative is available, owners and operators are generally assumed to select each alternative in even proportions. However, when available (i.e., for waste stream types B, D, E-2, F-2, H, and J, because of relatively high organic concentrations), 50 percent of facilities are assumed to take advantage of the waste exchange alternative, even if more than two alternatives are available. Remaining facilities are assumed to use other remaining options in even proportions.

For all waste stream scenarios involving off-site disposal, waste is assumed to be transported to a treatment facility without any pretreatment or segregation. Wastewater shipping distances are assumed to be 25, 50, and 200 miles for a POTW, nonhazardous waste facility, and hazardous waste facility, respectively. Transport to either a POTW or a nonhazardous waste facility is assumed to cost $9.81 per mile per thousand gallons, while transport to a hazardous waste facility is assumed to cost $3.99 per mile per thousand gallons. The lower unit shipping cost for hazardous waste is due to the extended distance to be traveled. Off-site waste disposal costs are $1.84 per 1,000 gallons, $1.55 per gallon, and $2.10 per gallon for POTW, non-hazardous, and hazardous waste facilities, respectively.

This analysis conservatively assumes that high-concentration wastes will be disposed of at hazardous waste treatment facilities despite the fact that any hazardous waste disposal in a Class V well is illegal. Wells receiving hazardous wastes would be classified as Class IV wells, which are prohibited under existing federal regulations. Based on past experience, about 13 percent of motor vehicle waste disposal wells are assumed to inject some hazardous waste.[20] Hazardous waste treatment is therefore included as a possible (though relatively unlikely) off-site management option because facilities may decide to concentrate their waste for volume reduction and more cost-effective disposal.

The cost of off-site management assumes implementation of BMPs which results in decreased annual wastewater flow. Given the limited number of facilities with complex BMPs, approximations of the expected flow reductions are used. Good housekeeping BMPs reduce

[20] 1991 Administrative Consent Order issued by EPA to 10 major oil companies.

Because all of the SIC categories are assigned at least two waste stream types, the analysis then calculates the weighted average facility costs in each SIC category. For instance, facilities within SIC code 5541 (gasoline service stations) generate both E-1 and E-2 waste stream types, though they all are assigned BMP category 2. Using the assumption that facilities generating each of the waste stream types within a SIC code are evenly distributed, EPA added half of the costs associated with waste stream type E-1, BMP category 2, to half of the costs associated with waste stream type E-2, BMP category 2. This produces the weighted average annualized capital and O&M costs that are applied to all facilities within SIC code 5541. For the ban with waiver options, Exhibit 4-10 shows these annualized capital and O&M costs for each waste stream type and BMP category within each SIC code, as well as the weighted average annualized capital and O&M costs for each SIC category.

4.1.12 Determining National Cost to Owners and Operators of Motor Vehicle Waste Disposal Wells

The analysis then calculates the national annualized cost to owners and operators of motor vehicle waste disposal wells by annualizing the present value of all facility costs (as described in Section 4.1.11) across all facilities and SIC categories. In doing this, the analysis takes into consideration when individual facilities will be affected by the rule. This is important primarily because, for motor vehicle waste disposal wells, some of the options apply not only to wells in ground water protection areas (as did the proposed rule), but also to wells in sensitive ground water areas or to all wells within a given State. The rule requires wells in ground water protection areas to comply with the rule by the end of 2004, whereas motor vehicle waste disposal wells in sensitive ground water areas and in other areas of a given State must come into compliance over a slightly longer period (by the end of 2007). Moreover, because the compliance schedule for individual wells is tied to their States' delineation of ground water protection areas and other sensitive ground water areas, the analysis assumes that wells in all States will not come into compliance in the same year.

To accurately evaluate the costs of the rule, the analysis recognizes the different time periods over which wells are expected to come into compliance. For motor vehicle waste disposal wells in ground water protection areas, this period is 2001-2004. For motor vehicle waste disposal wells in sensitive ground water areas, this period is 2004-2007. Within these periods, equal percentages of wells are assumed to comply each year. For example, for motor vehicle waste disposal wells in ground water protection areas, 25 percent of wells are assumed to comply in each of the years 2001, 2002, 2003, and 2004. Exhibit 4-11 shows the proportions of wells in each geographical area (ground water protection area, other sensitive ground water area, everywhere else) complying in a specific year in each option considered.

remediation to ensure that the cleanup has been completed. Based on the remediation information submitted to EPA by facilities complying with the AO agreement, it is estimated that an average facility will need to remediate approximately 40 cubic yards of soil (about 56 tons). Excavation costs are based on engineering estimates varying from $38.50 per ton for 13 tons of soil to $15.20 per ton for 210 tons (lower unit cost for higher volume). Therefore, an average facility will incur an excavation cost of $1,680 (at a unit cost of $30 per ton) to remediate 56 tons of soil.

To calculate the disposal costs of remediated soil, it is assumed that soil from 67 percent (i.e., about two-thirds) of the 35 percent of closed wells requiring remediation can be disposed of as non-hazardous waste, while the remaining soil will be disposed of as hazardous waste.

The cost of transporting non-hazardous soil is estimated at $392 for an average facility, while the disposal costs are calculated as $30 per ton at a landfill and $50 per ton at a non-hazardous waste thermal treatment plant. EPA assumes that half of the 67 percent of the facilities that have non-hazardous soils will select landfills and half will use thermal treatment.

The cost of transporting hazardous soil is estimated as $2,698 per facility at $53 per ton. The cost of disposing of hazardous soil in a thermal treatment plant is estimated at $350 per ton. Remediation costs associated with Class V wells do not consider costs associated with incineration or stabilization of wastes, because soil that requires such intensive treatment would most likely be associated with Class IV wells. The detailed cost calculations and unit costs for each treatment are given in Appendix VI.G of the 1998 economic analysis.

4.1.10 Other Administrative Costs

A one time cost of $164 has been added to the analysis to cover the administrative costs of the rule (reading the regulations, contacting the state or EPA region to determine if a well is in a ground water protection area or other sensitive ground water area, and initial recordkeeping costs).

4.1.11 Calculation of Average Facility Costs

The analysis then tabulates the average facility costs described above for each combination of waste stream type and BMP category. These costs, broken out by average capital and O&M cost, are shown in Appendix H and Appendix I, respectively, for wells under the ban options (1a, 2a, and 3a) and wells under the ban with waiver options (1b, 2b, and 3b). The analysis then calculates an average annual capital cost, assuming that capital costs are annualized using a 7 percent interest rate and a 20-year payback period for each well owner.

The resulting series of costs were then annualized as described in the beginning of the section.

Exhibit 4-10: Calculation of Average Facility Costs

SIC Code	Waste Type/BMP	Fraction of Wells	Annualized Capital $	O&M $/yr	Weighted Average Annual Capital $	Weighted Average O&M $/yr	Total Weighted Average Facility Cost
4142	E1-2	0.5	1,397	3,460	1,413	3,600	5,013
	E2-2	0.5	1,430	3,740			
4212	E1-2	0.5	1,397	3,460	1,413	3,600	5,013
	E2-2	0.5	1,430	3,740			
4213	E1-2	0.5	1,397	3,460	1,413	3,600	5,013
	E2-2	0.5	1,430	3,740			
4581	C-3	0.25	3,231	6,416	3,282	7,586	10,869
	D-3	0.25	3,247	7,100			
	I-3	0.25	3,319	7,372			
	J-3	0.25	3,333	9,457			
5015	F1-2	0.5	1,485	5,566	1,501	5,395	6,896
	F2-2	0.5	1,517	5,223			
5511	F1-2	0.5	1,485	5,566	1,501	5,395	6,896
	F2-2	0.5	1,517	5,223			
5521	F1-2	0.5	1,485	5,566	1,501	5,395	6,896
	F2-2	0.5	1,517	5,223			
5531	A-1	0.5	829	3,014	873	3,441	4,314
	G-1	0.5	917	3,868			
5541	E1-2	0.5	1,397	3,460	1,413	3,600	5,013
	E2-2	0.5	1,430	3,740			
7514	E1-2	0.5	1,397	3,460	1,413	3,600	5,013
	E2-2	0.5	1,430	3,740			
7515	F1-2	0.5	1,485	5,566	1,501	5,395	6,896
	F2-2	0.5	1,517	5,223			
7532	E1-2	0.5	1,397	3,460	1,413	3,600	5,013
	E2-2	0.5	1,430	3,740			
7533	E1-2	0.5	1,397	3,460	1,413	3,600	5,013
	E2-2	0.5	1,430	3,740			
7537	E1-2	0.5	1,397	3,460	1,413	3,600	5,013
	E2-2	0.5	1,430	3,740			
7538	E1-2	0.5	1,397	3,460	1,413	3,600	5,013
	E2-2	0.5	1,430	3,740			
7539	E1-2	0.5	1,397	3,460	1,413	3,600	5,013
	E2-2	0.5	1,430	3,740			
7549	A-2	0.25	1,344	3,439	1,391	3,879	5,270
	B-2	0.25	1,363	3,598			
	G-2	0.25	1,431	4,292			
	H-2	0.25	1,427	4,186			
9111	A-1	0.5	829	3,014	873	3,441	4,314
	G-1	0.5	917	3,868			

Exhibit 4-11
Compliance of Affected Populations by Year

Motor Vehicle Waste Disposal Wells																			
	GWPA					Other Sensitive Ground Water Areas							"Everywhere Else"						
Option	2001	2002	2003	2004	2005	2001	2002	2003	2004	2005	2006	2007	2001	2002	2003	2004	2005	2006	2007
Opt. 1a	1/4	1/4	1/4	1/4															
Opt. 1b	1/4	1/4	1/4	1/4															
Opt. 2a	1/4	1/4	1/4	1/4					1/4	1/4	1/4	1/4							
Opt. 2b	1/4	1/4	1/4	1/4					1/4	1/4	1/4	1/4							
Opt. 3a	1/4	1/4	1/4	1/4					1/4	1/4	1/4	1/4				1/4	1/4	1/4	1/4
Opt. 3b	1/4	1/4	1/4	1/4					1/4	1/4	1/4	1/4				1/4	1/4	1/4	1/4

Cesspools																			
	GWPA					Other Sensitive Ground Water Areas							"Everywhere Else"						
Option	2001	2002	2003	2004	2005	2001	2002	2003	2004	2005	2006	2007	2001	2002	2003	2004	2005	2006	2007
Opt. 1	1/5	1/5	1/5	1/5	1/5														
Opt. 2	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5									
Opt. 3	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/5			1/5	1/5	1/5	1/5	1/5		

4.2 Costing Methodology for Large-Capacity Cesspools

All the regulatory alternatives assume that large-capacity cesspools will be banned. Therefore, EPA assumes that cesspools will incur closure costs and costs associated with disposing a high volume (10,400 gallons per year) of domestic wastes off-site in POTWs. Closure costs associated with cesspools include capital costs for clean out, pipe flushing, pipe plugging, transportation of wastes off-site, disposal at a POTW, and the costs associated with filling the cesspool with clean, inert material.

The average cost of closing a cesspool (one-time) is estimated at $1,293. In addition to closure, owners and operators will incur costs associated with disposing of high-volume high-concentration organic wastewater in an off-site treatment facility. The one-time capital costs associated with analysis and installation of a holding tank are estimated at $607 and $5,412, respectively. The O&M costs associated with off-site disposal at a POTW are estimated at $2,922 per cesspool. There is no cost associated with soil remediation because only sanitary wastes are of concern. Finally, costs were added to cover administrative cost of submitting a pre-closure notification, and other administrative costs (reading the regulations, initial recordkeeping

costs). The unit costs associated with large-capacity cesspool closures are shown in Appendix J. These cost were annualized and phased in following the pattern described for motor vehicle waste disposal wells, assuming a fifth of the wells comply each year beginning in 2001.

Combining these costs results in an annualized total cost per well of $3,626.

4.3 Costing Methodology for States and EPA

Both EPA and Primacy States will incur costs to administer the new requirements. For Primacy States, the analysis has estimated costs associated with regulation adoption, preparation of a revised primacy application, delineation of sensitive ground water areas, review of pre-closure notifications, provision of technical assistance to well owners and operators, issuance of permits to qualifying motor vehicle waste disposal well owners and operators and review of periodic monitoring reports on these wells. Additional discussion of these costs is presented in the Information Collection Request (ICR) for the final rule (EPA ICR No. 1874.01). Primacy States will also incur costs associated with enforcement of the rule.

Direct implementation (DI) States (i.e., States in which EPA implements the UIC program) will incur fewer costs under the rule. The analysis assumes that half of these States will delineate sensitive ground water areas.

The analysis assumes that EPA will incur all costs associated with implementing the rule in DI States, as described above for Primacy States. EPA is also assumed to incur the cost of delineating sensitive ground water area for those DI States that do not themselves conduct the delineations.

This analysis estimates costs to States and EPA only for the option being promulgated in the final rule. These costs are estimated to total, on an annualized basis, less than $500,000.

4.4 Cost Results

This analysis estimates the total annual cost of the rule at approximately $26 million. This estimate assumes that all large-capacity cesspools will be affected by the rule, but that existing motor vehicle waste disposal wells will be affected only if they are located in ground water protection areas or sensitive ground water areas. This assumption is consistent with EPA's belief that all States will delineate source water protection areas (SWPAs) by May 2003 and sensitive ground water areas by January 2004. In the event that a State fails to delineate SWPAs as required, or elects not to delineate sensitive ground water areas, then the provisions of the rule would apply to all motor vehicle waste disposal wells in the State. EPA deems it unlikely, however, that the rule will be applied to motor vehicles statewide in any State.

Exhibit 4-12 presents the results of the cost analysis broken out by option. (The options promulgated are Option 2b for motor vehicle waste disposal wells and Option 3 for large-capacity cesspools.)

Cost results on a per facility are discussed in Section 5.

Exhibit 4-12
Results of Cost Analysis

Options	Number of Affected Wells	Total Cost
Motor Vehicle Waste Disposal Wells		
Option 1a: Ban in Ground Water Protection Areas	761	$ 4,100,000
Option 1b: Ban/Waiver in Ground Water Protection Areas	745	$ 3,100,000
Option 2a: Ban in Ground Water Protection Areas and Other Sensitive Ground Water Areas	5,699	$ 24,600,000
Option 2b: Ban/Waiver in Ground Water Protection Areas and Other Sensitive Ground Water Areas	5,324	$ 17,900,000
Option 3a: Ban Statewide	16,688	$ 70,400,000
Option 3b: Ban/Waiver Statewide	15,138	$ 49,600,000
Large-Capacity Cesspools		
Option 1: Ban in Ground Water Protection Areas	86	$ 200,000
Option 2: Ban in Ground Water Protection Areas and Other Sensitive Ground Water Areas	1,179	$ 3,300,000
Option 3: Ban Statewide	2,723	$ 7,600,000

4.5 Limitations of the Analysis

This analysis contains numerous assumptions that will influence the cost results. EPA believes the net effect of these assumptions is an overestimation of costs for the following reasons:

- The analysis assumes no motor vehicle waste disposal well owners will be able to meet MCLs without implementing BMPs, and that no facilities currently used BMPs. That is, every well owner will incur costs for BMPs even though it is

likely that many facilities already have these in place, or might not need to implement them at all to meet MCLs.

- This analysis assumes that Class V wells are not located in sewered areas. If Class V wells are located in sewered areas, the cost of wastewater disposal should be significantly less expensive than hauling it by truck to a POTW.

- EPA based the percentage of wells that would need to close on the more conservative of two data points from Regions 5 and 9. If the average or higher of these two points had been used, fewer wells would have been assumed to close, thereby reducing the cost of the rule.

- This analysis makes use of hazardous waste disposal fees for some of the wastewater and remediated soil. However, injection of hazardous waste is not permitted using Class V wells. As a result, estimated costs are higher than if EPA assumed all wells were operating in full compliance with UIC regulations.

- Some of the cost data that EPA received in public comment indicate that EPA's cost for specific cost elements may be higher than actual costs incurred by well owners that have already closed their wells. EPA could have chosen to *lower* the cost estimates. However, in the interest of being conservative, EPA only *raised* costs in response to these data (as described in Section 4.1.7). Further, the new cost element that EPA added as a result of the new data (a cost for engineering or contractor oversight) is not required under the final rule.

- Based on information from, and discussions with, several state and regional UIC staff, many facilities do not generate any wastewater after their wells are closed.[21] Some owners and operators of these closed wells are likely to implement waste minimization practices and BMPs, rather than continue to generate wastewater that requires off-site disposal. For instance, the data from New Hampshire suggest that only 23 percent of closed wells require holding tanks to store wastewater for disposal. This analysis, however, assumes that after well closure, every affected facility will continue to produce wastewater that requires treatment or disposal.

---

[21] Conversations with Mitch Locker of New Hampshire, Ron Stilene of Massachusetts, and Mark Nelson of EPA Region 3, October, 1997. Data from New Hampshire was from the NH Department of Environmental Services Site Remediation and Groundwater Hazard Inventory Listing of All Sites, or the "ALLSITES" list, as of October 1997.

5. Economic Impacts

This section discusses the per facility costs (in Section 5.1) and impacts (in Section 5.2) of the various regulatory alternatives on all affected businesses and local governments. Affected entities include both large and small entities. (See Section 6 of this report for a discussion of the rule's impacts on small entities in particular.)

5.1 Average Cost Per Facility

Compliance costs are estimated for the average facility in each representative SIC category, as described in Section 4. Facility costs have been annualized over 20 years, using a 7 percent discount rate, and are presented in 1999 dollars.

Per facility costs are calculated for two sets of options: the ban options (1a, 2a, 3a) and the ban/waiver options (1b, 2b, 3b). Within each of these sets of option, per facility costs will not vary (although the number of facilities affected and the total cost of the option will vary).

EPA estimates that the final rule will affect certain entities that own or operate motor vehicle waste disposal wells. Section 3 describes how the number of affected entities is estimated and how the affected facilities are characterized by SIC category. The average annualized cost per facility to owners and operators of these facilities is estimated to range from $4,300 to $14,400, depending on the waste streams generated by the facility. Exhibit 5-1 presents the average annualized per facility cost for each of the representative SIC categories, both for the ban options (1a, 2a, 3a) and the ban/waiver options (1b, 2b, 3b). Option 2b is being promulgated in the final rule.

The average annualized cost per facility to owners and operators of large-capacity cesspools is estimated at $3,626, regardless of the option being considered.

5.2 Impacts on Owners and Operators

The analysis estimates the impact of compliance costs based on the ratio of cost to sales (or total revenue). This provides a rough measure of the extent to which gross margins would be reduced by the incremental compliance costs, or alternatively, the amount by which a facility's prices would need to increase to maintain existing margins. Under actual market conditions, businesses may absorb only part of the compliance cost and pass the remainder on to their customers. The extent to which these impacts actually take place will vary across industries given their price elasticity of demand. The analysis employs screening level thresholds of one percent and three percent of sales to evaluate significant impacts.

Exhibit 5-1:
Average Annualized Per Facility Cost of Compliance

SIC Number	SIC Description	"Ban" Options 1a, 2a, 3a	"Ban/Waiver" Options 1b, 2b, 3b
4142	Bus charter service, except local	$5,745	$5,013
4212	Local trucking, without storage	$5,745	$5,013
4213	Trucking, except local	$5,745	$5,013
4581	Airports, flying fields, and airport terminal	$14,353	$10,869
5015	Motor vehicle parts, used	$12,590	$6,896
5511	Motor vehicle dealers (new and used)	$12,590	$6,896
5521	Motor vehicle dealers (used only)	$12,590	$6,896
5531	Auto and home supply stores	$6,115	$4,314
5541	Gasoline service stations	$5,745	$5,013
7514	Passenger car rental	$5,745	$5,013
7515	Passenger car leasing	$12,590	$6,896
7532	Top, body and upholstery repair shops and paint shops	$5,745	$5,013
7533	Auto exhaust system repair shops	$5,745	$5,013
7537	Automotive transmission repair shops	$5,745	$5,013
7538	General automotive repair shops	$5,745	$5,013
7539	Automotive repair shops, nec	$5,745	$5,013
7549	Automotive services, except repair and carwashes	$7,116	$5,270
9111	Municipal and solid waste township management and road facilities	$6,115	$4,314

The numerator of the ratio, compliance cost per facility, is the average facility cost for each SIC category, as discussed in Section 5.1.[22] The analysis models the ratio's denominator,

[22] Compliance costs for actual facilities will differ from the average based on facility-specific factors. Also, recall that costs have been annualized over a 20-year period using a 7 percent discount rate. This is consistent with the Office of Management and Budget's recommended best practices as detailed in *Economic Analysis of Federal Regulations Under Executive Order 12866.* Individual facilities, however, may be unable to obtain financing under relatively less favorable terms. Thus, impacts on facilities may be greater than those estimated.

per facility sales (or total revenue), for *all* facilities in each SIC category, as described in Appendix K.

The analysis estimates per facility impacts on owners and operators of motor vehicle waste disposal wells in each of the 18 representative SIC categories for two sets of options. Impacts associated with the ban options (1a, 2a, 3a) are summarized in Exhibit 5-2. Impacts associated with the ban/waiver options (1b, 2b, 3b) are summarized in Exhibit 5-3. Within each of these sets of options, the number of facilities estimated to incur potentially significant impacts varies, although the percentage of facilities incurring these impacts will not vary.

The final rule bans existing motor vehicle waste disposal wells in ground water protection areas and other sensitive ground water areas, but allows owners and operators to seek a waiver to keep operating by applying for a permit (Option 2b). Under the final rule, EPA estimates that compliance costs will exceed one percent of sales for almost half of the entities affected by the rule. About 18 percent (less than one-fifth) will incur costs exceeding three percent of sales. For virtually all of these entities most impacted by the rule, costs as a percent of sales are estimated to range from 3.1 percent to 8.3 percent. These figures almost certainly overstate impacts because they assume that all facilities incur the "average" compliance cost for their industry. In reality, compliance costs are likely to be proportional to economic activity. That is, facilities that do little business should generate less wastewater (and incur lower compliance costs) than facilities that do more business.

The final rule bans large-capacity cesspools statewide (Option 3). An estimated 2,700 facilities will incur costs associated with closing cesspools. However, available data on the type of entities that use large-capacity cesspools are insufficient to evaluate impacts on affected entities.

EXHIBIT 5-2
ESTIMATED IMPACTS ON MOTOR VEHICLE WASTE DISPOSAL WELLS OWNERS AND OPERATORS BAN OPTIONS (1A, 2A, and 3A)

SIC	SIC Description	Annual Cost per Entity ($)	1 Percent Impact				3 Percent Impact			
			Percent of Entities Affected	No. of Entities Affected			Percent of Entities Affected	No. of Entities Affected		
				1A	2A	3A		1A	2A	3A
4142	Bus charter service, except local	5,745	50%	1	5	16	20%	0	2	6
4212	Local trucking, without storage	5,745	70%	57	427	1,249	34%	28	211	617
4213	Trucking, except local	5,745	50%	33	250	731	23%	15	115	337
4581	Airports, flying fields, airport terminals	14,353	78%	4	31	91	51%	3	21	60
5015	Motor vehicle parts, used	12,590	91%	11	80	236	56%	7	50	146
5511	Motor vehicle dealers (new and used)	12,590	5%	2	16	46	1%	0	2	5
5521	Motor vehicle dealers (used only)	12,590	76%	23	174	511	36%	11	83	242
5531	Auto and home supply stores	6,115	60%	40	303	886	17%	11	84	246
5541	Gasoline service stations	5,745	33%	56	423	1,239	8%	13	98	288
7514	Passenger car rental	5,745	56%	4	34	99	29%	2	17	50
7515	Passenger car leasing	12,590	64%	1	7	21	38%	1	4	13
7532	Top, body and upholstery repair shops and paint shops	5,745	79%	45	338	990	33%	19	142	417
7533	Auto exhaust system repair shops	5,745	74%	7	50	146	26%	2	18	52
7537	Automotive transmission repair shops	5,745	87%	9	68	198	34%	3	26	76
7538	General automotive repair shops	5,745	87%	92	690	2,021	39%	41	309	905
7539	Automotive repair shops, nec	5,745	85%	14	108	316	39%	7	50	146
7549	Automotive services, except repair and carwashes	7,116	84%	15	113	331	45%	8	60	176
9111	Municipal and solid waste township management and road facilities	6,115	0%	0	0	0	0%	0	0	0
Businesses		--	59%	414	3,117	9,127	24%	171	1,292	3,782
Government Facilities		--	0%	0	0	0	0%	0	0	0
Total Entities Affected		--	54%	414	3,117	9,127	22%	171	1,292	3,782

EXHIBIT 5-3
ESTIMATED IMPACTS ON MOTOR VEHICLE WASTE DISPOSAL WELLS OWNERS AND OPERATORS BAN/WAIVER OPTIONS (1B, 2B, and 3B)

SIC	SIC Description	Annual Cost per Facility ($)	1 Percent Impact				3 Percent Impact			
			Percent of Facilities Affected	No. of Facilities Affected			Percent of Entities Affected	No. of Facilities Affected		
				1B	2B	3B		1B	2B	3B
4142	Bus charter service, except local	5,013	46%	1	5	13	17%	0	2	6
4212	Local trucking, without storage	5,013	66%	53	375	1,067	30%	24	173	617
4213	Trucking, except local	5,013	46%	30	216	615	20%	13	95	337
4581	Airports, flying fields, terminals	10,869	72%	4	27	77	44%	2	16	60
5015	Motor vehicle parts, used	6,896	75%	9	62	177	32%	4	26	146
5511	Motor vehicle dealers (new and used)	6,896	2%	1	5	14	0%	0	0	5
5521	Motor vehicle dealers (used only)	6,896	55%	16	118	335	17%	5	37	242
5531	Auto and home supply stores	4,314	44%	29	210	598	9%	6	41	246
5541	Gasoline service stations	5,013	28%	48	344	977	6%	10	73	288
7514	Passenger car rental	5,013	52%	4	30	84	26%	2	14	50
7515	Passenger car leasing	6,896	50%	1	5	15	25%	0	3	13
7532	Top, body and upholstery repair shops and paint shops	5,013	74%	42	297	845	28%	16	112	417
7533	Auto exhaust system repair shops	5,013	68%	6	43	123	21%	2	14	52
7537	Automotive transmission repair shops	5,013	83%	8	60	170	27%	3	19	76
7538	General automotive repair shops	5,013	83%	86	614	1,747	32%	34	241	905
7539	Automotive repair shops, nec	5,013	81%	13	96	273	33%	6	40	146
7549	Automotive services, exceptrepair and carwashes	5,270	76%	13	95	269	33%	6	41	176
9111	Municipal and solid waste township management and road facilities	4,314	0%	0	0	0	0%	0	0	0
Number of Businesses		--	53%	364	2,602	7,399	19%	133	947	2,695
Number of Government Facilities		--	0%	0	0	0	0%	0	0	0
Total Entities Affected		--	49%	364	2,602	7,399	18%	133	947	2,695

6. Regulatory Flexibility Analysis

The Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA), requires EPA to explicitly consider the effect of regulations on small entities. In accordance with Section 603 of the RFA, this section presents EPA's final regulatory flexibility analysis (FRFA) examining the impact of the proposed rule on small entities.

6.1 Need for and Objectives of the Rule

Class V wells are generally shallow wells or other devices used to inject fluids either directly into or above an underground source of drinking water (USDW). Class V wells are subject to the UIC regulations promulgated under the authority of Part C of the Safe Drinking Water Act (SDWA), which mandates the regulation of underground injection of fluids through wells to protect underground sources of drinking water. Under the current regulations, all Class V wells, regardless of the risk they pose to USDWs, are authorized by rule (no specific technical requirements). These generic Class V requirements provide, most importantly, that disposal of wastes into Class V wells cannot result in the movement of fluid containing any contaminant into USDWs, if the presence of that contaminant may cause a violation of the primary drinking water regulations or may otherwise adversely affect human health.

To meet the obligation to protect USDWs as mandated by the Safe Drinking Water Act and the requirements of a consent decree with the Sierra Club Legal Defense Fund, EPA is finalizing more specific requirements for two types of high risk Class V wells; large-capacity cesspools and motor vehicle waste disposal wells. The rule will ban new motor vehicle waste disposal wells and new and existing large-capacity cesspools nationwide. Existing motor vehicle waste disposal wells would be banned in ground water protection areas for community water systems and non transient non community water systems that use ground water (ground water protection areas) and other State designated sensitive ground water areas. However, owners and operators of existing motor vehicle waste disposal wells would be allowed to seek a waiver from the ban and apply for a permit if they can demonstrate that they can meet minimum permit requirements.

EPA is banning new motor vehicle waste disposal wells and new and existing large-capacity cesspools nationwide, and is banning motor vehicle waste disposal wells (with the opportunity to seek a waiver from the ban if certain conditions are met) located in ground water protection areas and sensitive ground water areas, based on the high potential for these wells to endanger USDWs. Available information and damage cases show that these wells stand out as particularly troublesome. Many wells at motor vehicle-related facilities are injecting fluids with little or no treatment, such as spilled gasoline and oil, waste oil, grease, engine cleaning solvents,

brake and transmission fluids, and antifreeze. These fluids contain potentially harmful contaminants, often in high concentrations. For example, fluids containing waste oils or gasoline generally include benzene, toluene, xylene, and other volatile contaminants. Waste oils and antifreeze also contain some priority heavy metal pollutants, such as barium, cadmium, chromium, and lead. Other contaminants that may be injected include methylene chloride, a compound found in many degreasers, and ethylene glycol, a component of antifreeze. All of these contaminants can be toxic above certain levels. Some, such as benzene and toluene, have the potential to cause cancer.

Large-capacity cesspools have a high potential to contaminate USDWs because: (1) sanitary wastes released in cesspools frequently exceed drinking water MCLs for nitrates, total suspended solids, and coliform bacteria;[23] (2) the wastes released in cesspools also contain other constituents of concern, including phosphates, chlorides, grease, viruses, and chemicals used to clean cesspools such as trichloroethane and methylene chloride; and (3) numerous States have reported degradation of USDWs from such cesspools.

Based on the above information, the detailed discussions in the preambles to the proposed and final Class V rule-makings, and the supporting documents contained in the rule-making docket, EPA believes that banning new motor vehicle waste disposal wells and new and existing large-capacity cesspools nationwide and existing motor vehicle waste disposal wells (with option for existing wells to seek a waiver) in ground water protection areas and sensitive ground water areas is necessary to protect USDWs.

6.2 Issues Raised by Public Comments in Response to the IRFA

One commentor on the proposed rule noted EPA's statement that the Agency had reduced the burden on small entities by keeping permitting, reporting, and other administrative requirements to a minimum. The commentor stated that EPA's statement was inconsistent with the proposed requirements, and that EPA's proposal would put a burden on small entities.

In the final rule, the Agency has sought to minimize the requirements applicable to owners and operators of UIC wells to the extent consistent with the objectives of the rule. Closure requirements for owners and operators of existing large capacity cesspools and motor vehicle waste disposal wells are limited to notifying the UIC Director 30 days prior to closing the well. For owners and operators of motor vehicle waste disposal wells that choose to seek a waiver from the ban, the minimum requirements include obtaining a permit and monitoring

[23] United States Environmental Protection Agency (EPA), Office of Water, *Report to Congress: Class V Injection Wells*, September 1987, page 4-149.

sludge and injectate to insure compliance. EPA has carefully estimated the costs of all of the requirements applicable to small entities; evaluated the impacts of the costs; and incorporated any applicable comments received during the comment period for the proposed rule and the Notice of Data Availability.

The commentor also expressed concern that EPA's analysis might understate impacts on small trucking companies in rural areas given EPA's stated expectation that waste disposal wells and drinking water wells may both be located in populated areas. The analysis explicitly assumes a correlation between existing motor vehicle waste disposal wells UIC wells and populated areas that are unsewered. The statement noted by the commentor discussed the assumption that motor vehicle waste disposal wells are twice as likely to fall within ground water protection areas as outside of ground water protection areas. The effect of this assumption was to double the estimated number of entities -- including small entities -- that are found in ground water protection areas. For this reason, the commentor's concern is unfounded and no changes to the rule or the analysis are necessary.

Finally, the commentor also raised the question of whether this regulation will override the current federal and State regulations in place across the country. If it does not, the commentor argues, then most of these facilities will also need to perform some sort of testing during closure at their expense that may then lead to expensive remediation activities. The new requirements establish minimum requirements for two types of Class V injection wells. The new requirements do not set standards for closure of Class V wells, referring owners and operators to existing State or federal closure requirements. Primacy States and EPA Regions (for DI States) may require specific testing and/or remediation if deemed necessary by the UIC Director. EPA did estimate possible costs that owners and operators might incur during closure of their Class V well, as discussed in Section 4.1.

6.3 Description and Estimate of the Number of Small Entities Affected

The final rule affects owners and operators of two categories of Class V injection wells: large-capacity cesspools nationwide and, motor vehicle waste disposal wells when located in ground water protection areas or sensitive ground water areas. The initial regulatory flexibility analysis (IRFA) discussed a third category of Class V injection wells (industrial wells) that is not addressed by the final rule.

- *Motor vehicle waste disposal wells* receive or have received fluids from vehicular repair or maintenance activities, such as an auto body repair shop, automotive repair shop, new and used car dealership, specialty repair shop (e.g., transmission and muffler repair shop), or any facility that does any vehicular repair work. Fluids disposed in these wells may contain organic and inorganic chemicals in

concentrations that exceed the maximum contaminant levels (MCLs) established by the primary drinking water regulations (see 40 CFR Part 142). These fluids also may include waste petroleum products and may contain contaminants, such as heavy metals and volatile organic compounds, which pose risks to human health.

- *Large-capacity cesspools.* Cesspools are drywells that receive untreated sanitary waste, and which sometimes have an open bottom and/or perforated sides. The UIC requirements do not apply to single-family residential cesspools nor to non-residential cesspools that receive solely sanitary waste and have the capacity to serve fewer than 20 persons a day.

The analysis estimates impacts for the selected regulatory option. The rule bans existing motor vehicle waste disposal wells in ground water protection areas and sensitive ground water areas, but allows them to continue to operate if they seek a waiver from the ban and obtain a permit. The final rule also bans large-capacity cesspools and new motor vehicle waste disposal wells nationwide.

The RFA's definition of a small entity includes small businesses, small governmental jurisdictions, and small not-for-profit organizations. This rule would primarily affect small business entities. To define small business entities, EPA used the Small Business Administration's (SBA) industry-specific criteria published in 13 CFR 121. SBA size standards have been established for each type of economic activity under the Standard Industrial Classification (SIC) system. These criteria are usually expressed in terms of number of employees or dollar volume of sales. Appendix L shows the SBA size threshold used for each of the 18 SIC categories used in the analysis.

Using the methodology described in Sections 3 and 5 of this document, EPA estimated the number of facilities potentially affected by the final rule, along with the fraction and number of those facilities that qualify as small entities. Approximately 4,800 small businesses and 370 small governments are affected by the motor vehicle waste disposal well provisions of the final rule. Of the 18 SIC categories used in the analysis, 17 are comprised mainly of small entities (at least 95 percent of all facilities in the category). The other category (SIC 5511, used motor vehicle dealers) consists of 77 percent small businesses. Data on the type of entities that use large-capacity cesspools are insufficient to analyze impacts.

EPA's analysis to evaluate the magnitude of the impacts on these small entities uses the same methodology described in Section 5, except that the analysis is conducted only on those entities that qualify as small. Exhibit 6-1 summarizes the analysis of small entity impacts, including both the number of small entities affected and the magnitude of the impacts. About 50

Exhibit 6-1:
Small Entities Affected by Class V Regulation:
Motor Vehicle Waste Disposal Wells

SIC Code	SIC Description	No. of Affected Entities	Percent Small	No. of Small Entities	No. Affected at 1%	No. Affected at 3%	Percent Affected at 1%	Percent Affected at 3%
4142	Bus charter service, except local	10	95%	10	5	2	48%	18%
4212	Local trucking, without storage	573	100%	573	375	173	66%	30%
4213	Trucking, except local	469	99%	465	216	95	47%	20%
4581	Airports, flying fields, and airport terminal services	37	95%	36	27	16	75%	46%
5015	Motor vehicle parts, used	83	100%	83	62	26	75%	32%
5511	Motor vehicle dealers (new and used)	280	77%	216	5	0	2%	0%
5521	Motor vehicle dealers (used only)	214	100%	214	118	37	55%	17%
5531	Auto and home supply stores	474	100%	473	210	41	44%	9%
5541	Gasoline service stations	1,210	97%	1,169	344	73	29%	6%
7514	Passenger car rental	56	99%	56	30	14	53%	26%
7515	Passenger car leasing	11	98%	10	5	3	51%	26%
7532	Top, body and upholstery repair shops and paint shops	402	100%	402	297	112	74%	28%
7533	Auto exhaust system repair shops	63	100%	63	43	14	68%	21%
7537	Automotive transmission repair shops	72	100%	72	60	19	83%	27%
7538	General automotive repair shops	744	100%	744	614	241	83%	32%
7539	Automotive repair shops, nec	118	100%	118	96	40	81%	33%
7549	Automotive services, except repair and carwashes	125	100%	125	95	41	76%	33%
9111	Municipal and solid waste township management and road facilities	381	97%	370	0	0	0%	0%
Totals		5,322		5,199	2,602	947	50%	18%

percent of the affected small entities are estimated to incur costs that represent more than 1 percent of their sales (or revenue for small governments); whereas, about 18 percent of the affected small entities are estimated to incur costs that represent more than 3 percent of their sales (or revenue for small governments). For virtually all of these small entities most impacted by the rule, costs as a percent of sales are estimated to range from 3.1 percent to 8.3 percent. Note, however, that these figures are likely to be overstated for two reasons. First, they assume that all small entities incur the "average" compliance cost for their industry. In reality, compliance costs are likely to be proportional to economic activity. That is, small facilities that do relatively less business should generate less wastewater (and incur lower compliance costs) than facilities that do more business. Second, the analysis does not take into consideration that some businesses are subsidiaries of larger businesses and thus may not qualify as small businesses under the Regulatory Flexibility Analysis.

Based on this analysis, EPA believes that the final rule will have (or may have) a significant impact on a substantial number of small entities. This is consistent with the Agency's analysis of the proposed rule, and EPA has conducted its rulemaking process accordingly (e.g., by conducting small entity outreach and convening a Small Business Advocacy Review Panel), as discussed below.

6.4 Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements of the Final Rule

In the targeted ground water protection areas and other sensitive ground water areas, the final rule will ban Class V motor vehicle waste disposal wells, as well as large capacity cesspools. Existing Class V motor vehicle waste disposal wells in affected areas may seek a waiver from the ban and apply for a permit. Owners or operators of large capacity cesspools or motor vehicle waste disposal wells that close their wells would be required to notify the UIC Program Director of the intent to abandon their well at least 30 days prior to abandonment.

To comply with these requirements under the final rule, owners or operators of each affected well type would need basic engineering and administrative skills to close their well and implement alternative waste management practices. Well closure is likely to include pipe flushing, pipe plugging, wastewater disposal, and backfilling wells with soil, cement, or other material. Remediation – defined as removal of piping, septic tank, and/or contaminated soil and installation of ground water monitoring wells – is not required as part of closure, but EPA understands that closure of the well may trigger site characterization and remediation requirements under EPA Regional and Primacy State UIC Program Implementation of 40 CFR 144.12, other State environmental programs, insurance policies, business contracts, local ordinances, and so forth. The economic analysis supporting the final rule, therefore, reflects these costs, where they are likely to apply. Alternative waste management practices will most

likely include such pollution prevention measures as: (1) recycling and reusing wastewater; (2) collecting and recycling petroleum-based fluids, coolants, and battery acids drained from motor vehicles; (3) washing parts in a self-contained, recirculating solvent sink, with spent solvents being recovered and replaced by the supplier; (4) using absorbents to clean up minor leaks and spills, and placing the used materials in approved waste containers and disposing of them properly; or (5) using a wet vacuum or mop to pick up accumulated rain or snow melt and disposing of it properly.

Under the final rule, some owners or operators of existing motor vehicle waste disposal wells may choose to seek a waiver from the ban that would allow them to keep their wells open if they can meet specific permit requirements. The specific permit requirements could vary from one well to the next, but would have to include the following three conditions at a minimum. First, owners or operators would have to make sure fluids released in their wells meet the primary drinking water MCLs at the point of injection or other appropriate health-based standards approved by the UIC Program Director. Second, owners or operators would have to follow accepted best management practices (BMPs) for motor vehicle-related facilities. The BMPs recommended in the State of Connecticut's *Best Management Practices for the Protection of Ground Water* and American Petroleum Institute's *Handling Water Discharges from Automotive Service Facilities Located at Petroleum Marketing Operations* serve as good models. Third, owners or operators would have to monitor the quality of their injectate and sludge (if present in dry wells or tanks holding injectate) both initially and on a continuing basis in order to demonstrate compliance with the permit MCLs. The rule, however, would not specify new injectate monitoring requirements that must be followed, leaving those instead to the discretion of the Director. New monitoring would require on-site sampling and recordkeeping capabilities, as well as contractor laboratory services for sample analysis.

Finally, no special skills are believed to be needed to comply with the pre-closure notification requirement. This notification is very simple, consisting of filling out a form or sending a brief letter informing the UIC Program Director of the intent to abandon a well at least 30 days prior to abandonment.

6.5 Minimizing Impacts on Small Entities

6.5.1 Steps Taken to Minimize Impacts

To reduce the impact of the final rule on small entities, EPA has attempted to keep technical requirements, as well as reporting and other administrative requirements, to a minimum while ensuring adequate protection of drinking water supplies. The proposed rule incorporated all of the consensus recommendations offered by the Small Business Advocacy Review Panel that was convened by EPA to obtain advice and recommendations from representatives of

affected small entities in accordance with Section 609(b) of the Act. In particular, the Panel recommended that the rule offer alternatives to the ban of Class V motor vehicle waste disposal wells. Therefore, in addition to the ban, the EPA co-proposed a ban with waiver option for existing motor vehicle waste disposal wells. The Panel also recommended that UIC Program Directors be allowed to extend the time to comply with the new requirements from 90 days to up to a year in certain situations. Other changes made to the proposal in response to Panel recommendations include the following: the preamble clarifies that Class V wells at motor vehicle service facilities may not be subject to the rule if motor vehicle waste fluids are prevented from entering the well; the preamble has been expanded to elaborate on the rationale for the proposed statewide coverage of the new requirements in States that fail to complete their source water assessments by May 2003; the supporting economic analysis has been revised to acknowledge and account for the cleanup requirements that may be triggered by the proposal to close certain Class V wells and to account for the likely overlap between areas where Class V wells are located and source water protection areas; and the regulatory language has been expanded to identify ways in which well owners or operators can learn whether they are in a source water protection area.

The new requirements finalize some of the Panel's recommendations including: allowing owners and operators of existing motor vehicle waste disposal wells to seek a waiver from the ban and obtain a permit if they can meet certain conditions; the preamble clarifies that wells (including storm water wells) at motor vehicle service facilities may not be subject to the rule if motor vehicle waste fluids are prevented from entering the well; the deadline for statewide coverage of the new requirements in States that fail to complete their source water assessments by May 2003 has been extended to January 1, 2004 to give States additional time to complete their drinking water source water assessments; and, the supporting economic analysis has been revised to account for higher cleanup cost incurred by some facilities.

6.5.2 Alternatives Not Adopted

1. Banning All Motor Vehicle Waste Disposal Wells

One of the proposed options was to ban existing motor vehicle waste disposal wells in ground water protection areas and other sensitive areas. The need for a ban was based on the high potential for these wells to endanger USDWs and EPA's concern that protection of current and future drinking water might only be achieved through a total ban of these wells in ground water protection areas and other sensitive areas. However, EPA did not select this option, instead allowing owners and operators to seek a waiver from the ban and obtain a site specific permit that requires injectate to meet MCLs and other health based standards at the point of injection. While it is EPA's belief that the majority of owners and operators of motor vehicle

facilities will close their wells, allowing permitting of motor vehicle waste disposal wells gives States and facility owners flexibility while insuring protection of USDWs.

2. Meet MCLs as Part of Rule Authorization

EPA also included an alternative for owners and operators of existing motor vehicle waste disposal wells that would require them to meet MCLs and other health based standards at the point of injection as a requirement of rule authorization. The requirements for this option are identical to the regulatory approach chosen, except owners and operators would not have to seek a waiver from the ban and to obtain a site specific permit. This option was not selected because EPA believes that banning of high risk wells in ground water protection areas and sensitive ground water areas is the best means of providing protection to drinking water sources. However, if owners and operators can demonstrate that they are not endangering USDWs through obtaining a permit in which injectate does not exceed the MCL or other health based standards at the point of injection, BMPs are followed, and monitoring of injectate and sludge is conducted, some wells could remain open. An effective prevention program requires the involvement of both the regulators and the regulated community. The main reason for considering the waiver from the ban would be the involvement of State and EPA Regions (for DI States) through permits.

Appendices

Appendix A: **Number of Large-Capacity Cesspools and Motor Vehicle Waste Disposal Wells as Reported in the Class V Study**

Appendix B: **Economic Analysis Estimate of Potentially Affected Wells**

Appendix C: **Summary of States' Class V UIC Well Inventories and Programs, and Implications for the Economic Analysis**

Appendix D: **Estimating the Number of Wells in Ground Water Protection Areas**

Appendix E: **Estimating the Number of Wells in Sensitive Ground Water Areas**

Appendix F: **Sampling and Monitoring Costs for Motor Vehicle Waste Disposal Wells**

Appendix G: **On-Site Treatment Costs**

Appendix H: **Average Capital and O&M Costs for Wells Under the Ban Options (1a, 2a, and 3a)**

Appendix I: **Average Capital and O&M Costs for Wells Under the Ban with Waiver Options (1b, 2b, and 3b)**

Appendix J: **Unit Costs Associated with Large-Capacity Cesspool Closures**

Appendix K: **Estimating Per Facility Sales for Facilities in Each Affected SIC Category**

Appendix L: **SBA Size Thresholds for Affected Facilities**

Appendix M: **Data and Calculations for SIC Codes in the Utilities Sector**

Appendix N: **Data for Towns with Populations Under 50,000**

Appendix A

Number of Large-Capacity Cesspools and Motor Vehicle Waste Disposal Wells as Reported in the Class V Study

Inventory of Large-Capacity Cesspools in the US

State	Documented Number of Wells	Estimated Number of Wells	
		Number	Source of Estimate and Methodology
EPA Region 1 – None			
EPA Region 2			
NY	3	NR	N/A
VI	0	500	Review of business directory, particularly the number of large businesses.
EPA Region 3			
DE	0	25	Best professional judgement.
WV	299	299	N/A
EPA Region 4			
FL	0	Unknown	Some cesspools may exist but do not know if they meet large capacity definition.
GA	1	> 1	There may be additional cesspools, particularly at old facilities installed prior to 1984 when the Environmental Protection Division assumed primacy of the UIC program. At this time, however, the State does not know that any other cesspools exist.
KY	NR	NR	N/A
EPA Region 5			
IN	3	4	Best professional judgement of EPA Region 5 staff.
OH	224	≥ 1,000	Information from Ohio EPA District Ground Water and Surface Water staff, as well as local health departments.
Tribal Program	9	10	Best professional judgement of EPA Region 5 staff.
EPA Region 6			
TX	0	0	Database. 17 wells are closed. These closures are tracked by the State.
EPA Region 7 – None			
EPA Region 8 – None			

Inventory of Large-Capacity Cesspools in the US

State	Documented Number of Wells	Estimated Number of Wells	
		Number	Source of Estimate and Methodology
EPA Region 9			
CA	78	78	N/A
HI	58	58	N/A
CNMI	Unknown	NR	N/A
EPA Region 10			
ID	0	25	Data collected by Calvin Terada, Region 10, per telephone conversations with State personnel.
OR	6,248	6,400	State Regional staff estimate and discoveries by Cleanup Division. Also, data collected by Calvin Terada, Region 10, per telephone conversations with State personnel.
WA	1	25	Data collected by Calvin Terada, Region 10, per telephone conversations with State personnel.
All EPA Regions			
All States	6,924	> 8,428	Total estimated number counts the documented number when the estimate is NR.

N/A Not available

NR Although Regional, State and/or Territorial officials reported the presence of the well type, the number of wells not reported, or the questionnaire was not returned.

Unknown Questionnaire completed, but number of wells is unknown.

Inventory of Motor Vehicle Wells in the U.S.

State	Documented Number of Wells	Estimated Number of Wells	
		Number	Source of Estimate and Methodology
EPA Region 1			
MA	0	NR	Best professional judgement. The State believes that there are still a significant number of motor vehicle waste disposal wells. However, the inventory is 0 because all wells are closed upon discovery.
ME	1,239	1,239 to 3,000	Best professional judgement and field inspection history. New motor vehicle waste disposal wells are identified weekly during routine inspections. Although the Maine Department of Environmental Protection (DEP) has identified many that have been abandoned, it finds approximately twice as many new ones through inspection.
NH	26	918	Currently, there are 1,225 service stations in NH with active and inactive underground and aboveground storage tanks. The State estimates that 75 percent of these facilities, or 918 sites, are not supported by municipal sewers. This estimate is based on best professional judgement.
RI	15	800 to 1,200	Estimate based on best professional judgement, including previous inventory work, discussions with consultants, local staff, etc., and understanding of existing business. A new inventory effort is on-going.
VT	NR	Unknown	N/A
EPA Region 2			
NJ	4	NR	N/A
NY	345	3,000	Best professional judgement, based on years of inspections and reviews of business directories.
VI	0	100	Review of inspection reports, business directory, and the number of P&A wells.

Inventory of Motor Vehicle Wells in the U.S.

State	Documented Number of Wells	Estimated Number of Wells	
		Number	Source of Estimate and Methodology
EPA Region 3			
DC	1	NR	N/A
MD	71	> 71	N/A
PA*	1,700	> 1,700	Documented number of wells based on data from Region 3's Well Activities, Tracking, Evaluation, and Reporting System (WATERS) Database. New motor vehicle waste disposal wells are identified weekly during routine inspections.
VA*	467	> 467	Documented number of wells based on data from Region 3's Well Activities, Tracking, Evaluation, and Reporting System (WATERS) Database. New motor vehicle waste disposal wells are identified weekly during routine inspections.
WV	53	< 53	State officials believe most wells have been closed.
EPA Region 4 – None			
EPA Region 5			
IN	6	> 100	N/A
MI	11	NR	N/A
OH	405	800 to 1,200	Estimate prepared by Ohio EPA based on extensive discussions with trade organizations, knowledge of industry, and unsewered areas in Ohio.
WI	67	> 67	Surveys conducted by Wisconsin Department of Natural Resources (WDNR) in 1989 and 1996.
Tribal Program	14	> 14	N/A
EPA Region 6 – None			

Inventory of Motor Vehicle Wells in the U.S.

State	Documented Number of Wells	Estimated Number of Wells	
		Number	Source of Estimate and Methodology
EPA Region 7			
IA	1	100 to 1,000	Best professional judgement. Although the use of motor vehicle wells is illegal in Iowa, discussions with state sanitarians reveal that the use of this type of well is more common than originally thought.
KS	2	< 50	Best professional judgement. Note that most motor vehicle disposal wells are not broken out from other industrial waste disposal wells.
MO	36	100	Best professional judgement.
NE	136	200	Best professional judgement.
EPA Region 8			
MT	6 (permitted) 129 (1997 UIC Inventory)	> 129	Region is inventorying the State by geographic region. Many parts of the State have not yet been inventoried. However, Region 8 has already closed more than 700 automotive waste disposal wells and permitted 6 wells.
ND	174	174	N/A
SD	15	> 15	The documented number of wells primarily reflects geographic initiatives in Sioux Falls, Brookings, and Rapid City. The documented number can not be extrapolated to the rest of the State because only a small area of the State has been examined to date.
UT	35	> 35	Inventory forms received in FY 1998 are not reflected in the documented number because of an anticipated change in data systems.
WY	60	60	Best professional judgement.
Tribal Program	3	> 3	Best professional judgement.
EPA Region 9			
CA	414	414	N/A
Tribal Program	0	< 100	Best professional judgement.

Inventory of Motor Vehicle Wells in the U.S.

State	Documented Number of Wells	Estimated Number of Wells	
		Number	Source of Estimate and Methodology
EPA Region 10			
ID	18	1,250	Data collected by Calvin Terada, Region 10, from telephone conversations with State personnel.
OR	0	500	Best professional judgement, and data collected by Clavin Terada, Region 10, from telephone conversations with State personnel.
WA	150	500	Data collected by Calvin Terada, Region 10, from telephone conversations with State personnel.
Tribal Program	4	4	N/A
All EPA Regions			
All States	5,601	> 16,440	Total estimated number counts the documented number when the estimate is NR.

N/A Not available
NR Although Regional, State and/or Territorial officials reported the presence of the well type, the number of wells was not reported, or the questionnaire was not returned
Unknown Questionnaire completed, but number of wells is unknown.

* Well inventory data were obtained from Memorandum from ICF to Robyn Delehanty, EPA: "Analysis of Class V Injection Wells in EPA Region 3," dated January 20, 1999; and on-going review of EPA Region 3's enforcement actions.

Appendix B: Economic Analysis Estimate of Potentially Affected Wells			
State	**Region**	**Class V Study Inventory of Motor Vehicle Waste Disposal Wells**	**Economic Analysis Estimate of Motor Vehicle Waste Disposal Well Inventory**
CT	1	0	0
MA	1	NR	694
ME	1	1,239-3,000	3,000
NH	1	918	918
RI	1	800-1,200	1,200
VT	1	UNK	46
NJ	2	NR	782
NY	2	3,000	3,000
PR	2	0	0
VI	2	100	100
DC	3	NR	0
DE	3	0	0
MD	3	> 71	370
PA	3	> 1,700	1,700
VA	3	> 467	771
WV	3	< 53	53
AL	4	0	0
FL	4	0	0
GA	4	0	0
KY	4	0	0
MS	4	0	0
NC	4	0	0
SC	4	0	0
TN	4	0	0
IL	5	0	0
IN	5	> 100	430
MI	5	NR	1,047

Appendix B: Economic Analysis Estimate of Potentially Affected Wells			
State	**Region**	**Class V Study Inventory of Motor Vehicle Waste Disposal Wells**	**Economic Analysis Estimate of Motor Vehicle Waste Disposal Well Inventory**
MN	5	0	0
OH	5	800-1,200	1,200
WI	5	> 67	392
Tribal Program	5	> 14	14
AR	6	0	0
LA	6	0	0
NM	6	0	0
OK	6	0	0
TX	6	0	0
IA	7	100-1,000	1,000
KS	7	< 50	50
MO	7	100	100
NE	7	200	200
CO	8	0	0
MT	8	> 129	129
ND	8	174	174
SD	8	> 15	1,329
UT	8	> 35	163
WY	8	60	60
Tribal Program	8	> 3	3
AZ	9	0	0
CA	9	414	414
HI	9	0	0
NV	9	0	0
GU	9	0	0
AS	9	0	0
CNMI	9	0	0

Appendix B: Economic Analysis Estimate of Potentially Affected Wells			
State	**Region**	**Class V Study Inventory of Motor Vehicle Waste Disposal Wells**	**Economic Analysis Estimate of Motor Vehicle Waste Disposal Well Inventory**
Tribal Program	9	< 100	100
AK	10	0	0
ID	10	1,250	1,250
OR	10	500	500
WA	10	500	500
Tribal Program	10	4	4
Total		**>16,424**	**21,692**

Appendix B: Economic Analysis Estimate of Potentially Affected Wells			
State	**Region**	**Class V Study Inventory of Large Capacity Cesspools**	**Economic Analysis Estimate of Large Capacity Cesspool Inventory**
MA	1	0	0
ME	1	0	0
NH	1	0	0
RI	1	0	0
VT	1	0	0
NJ	2	0	0
NY	2	NR	222
PR	2	0	0
VI	2	500	500
DC	3	0	0
DE	3	25	25
MD	3	0	0
PA	3	0	0
VA	3	0	0
WV	3	299	299
AL	4	0	0
FL	4	UNK	410
GA	4	> 1	367
KY	4	NR	157
MS	4	0	0
NC	4	0	0
SC	4	0	0
TN	4	0	0
IL	5	0	0
IN	5	4	4
MI	5	0	0
MN	5	0	0
OH	5	>= 1,000	1,000

Appendix B: Economic Analysis Estimate of Potentially Affected Wells			
State	**Region**	**Class V Study Inventory of Large Capacity Cesspools**	**Economic Analysis Estimate of Large Capacity Cesspool Inventory**
WI	5	0	0
Tribal Program	5	10	10
AR	6	0	0
LA	6	0	0
NM	6	0	0
OK	6	0	0
TX	6	0	0
IA	7	0	0
KS	7	0	0
MO	7	0	0
NE	7	0	0
CO	8	0	0
MT	8	0	0
ND	8	0	0
SD	8	0	0
UT	8	0	0
WY	8	0	0
Tribal Program	8	0	0
AZ	9	0	0
CA	9	78	78
HI	9	58	58
NV	9	0	0
GU	9	0	0
AS	9	0	0
CNMI	9	NR	4
Tribal Program	9	0	0
AK	10	0	0
ID	10	25	25
OR	10	6,400	6,400

Appendix B: Economic Analysis Estimate of Potentially Affected Wells			
State	**Region**	**Class V Study Inventory of Large Capacity Cesspools**	**Economic Analysis Estimate of Large Capacity Cesspool Inventory**
WA	10	25	25
Tribal Program	10	0	0
Total		**8,425**	**9,583**

Appendix C:
Summary of States' Class V UIC Well Inventories and Programs, and Implications for the Economic Analysis

State	Primacy or DI	Motor Vehicle Waste Disposal Wells	Large-Capacity Cesspools
EPA Region 1			
CT	P	0 exist	0 exist
MA	P	Regs require individual permit, but not permitted, so an effective statewide ban -- ban not in regs, but "more than just policy" (lots of outreach, everyone knows, etc.) *Full credit for ban and waiver*	0 exist
ME	P	Same as MA	0 exist
NH	P	Same as MA	0 exist
RI	P	Regs require individual permit; permit requirements are very restrictive and generally result in closure; must meet EPA or more restrictive state drinking water standard at point of injection *No credit for ban; full credit for waiver*	0 exist
VT	P	Regs require individual permit; must meet EPA or more restrictive state drinking water standards at a point in the aquifer, not at the point of injection *No credit for ban; no credit for waiver*	0 exist
EPA Region 2			
NJ	P	Regs require individual permit; close them when find them, but no ban on the books; unclear what quality standards apply where *No credit for ban or waiver*	0 exist
NY	DI	Federal program, although state issues individual permits for some wells *No credit for ban or waiver*	Federal program only *No credit*
PR	P	0 exist	0 exist

Appendix C:
Summary of States' Class V UIC Well Inventories and Programs, and Implications for the Economic Analysis

State	Primacy or DI	Motor Vehicle Waste Disposal Wells	Large-Capacity Cesspools
VI	DI	Federal program only *No credit for ban or waiver*	Federal program only *No credit*

Appendix C:
Summary of States' Class V UIC Well Inventories and Programs, and Implications for the Economic Analysis

State	Primacy or DI	Motor Vehicle Waste Disposal Wells	Large-Capacity Cesspools
EPA Region 3			
DC	DI	Federal program only *No credit for ban or waiver*	0 exist
DE	P	0 exist	Banned by regulation *Full credit*
MD	P	No ban or discharge limits; a permitting program but not clear what the program involves *No credit for ban or waiver*	0 exist
PA	DI	Close them when found, but only federal program on the books *No credit for ban or waiver*	0 exist
VA	DI	Close them when found, but only federal program on the books *No credit for ban or waiver*	0 exist
WV	P	When wells are found, they are required to close or get an individual permit in accordance with existing law (no ban on the books); if get permit, must meet MCLs in ground water, not at point of injection *No credit for ban or waiver*	When cesspools found, they are required to close or get an individual permit in accordance with existing law (no ban on the books); if get permit, must meet MCLs in ground water, not at point of injection *No credit*
EPA Region 4			
AL	P	0 exist	0 exist
FL	P	0 exist	Regs require individual permit for all wells, which must meet MCLs at point of injection; assumed to be de facto ban for cesspools *Full credit*

Appendix C:
Summary of States' Class V UIC Well Inventories and Programs, and Implications for the Economic Analysis

State	Primacy or DI	Motor Vehicle Waste Disposal Wells	Large-Capacity Cesspools
GA	P	0 exist	Regs require individual permit, but no specific permit requirements are on the books; wouldn't permit new ones; unclear if would permit existing ones if found *No credit*
KY	DI	0 exist	Federal program only *No credit*
MS	P	0 exist	0 exist
NC	P	0 exist	0 exist
SC	P	0 exist	0 exist
TN	DI	0 exist	0 exist
EPA Region 5			
IL	P	0 exist	0 exist
IN	DI	Federal program only *No credit for ban or waiver*	Federal program only *No credit*
MI	DI	Federal program only (no specific program at State level); however, believe request for a new well would be reviewed by MDEQ for a groundwater discharge permit, which would set contaminant limits at or below MCLs (though not sure if target limits cover all MCLs) *No credit for ban or waiver*	0 exist
MN	DI	0 exist	0 exist
OH	P	Regs require an individual permit; existing wells have been encouraged to voluntarily close for the past 12 years; o/o's of new wells deterred because they are told they would have to meet MCLs at point of injection; but there are new and existing wells that OH doesn't know about and aren't controlled to same standard *No credit for ban or waiver*	No ban *No credit*

Appendix C:
Summary of States' Class V UIC Well Inventories and Programs, and Implications for the Economic Analysis

State	Primacy or DI	Motor Vehicle Waste Disposal Wells	Large-Capacity Cesspools
WI	P	Disposal of motor vehicle waste fluids via a well or septic system is prohibited; floor drains are allowed in service areas to receive snowmelt only; these floor drains do not require a permit because injectate contains very small concentrations of industrial contaminants *Full credit for ban; full credit for waiver*	0 exist
Tribal	DI	Federal program only *No credit for ban or waiver*	Federal program only *No credit*
EPA Region 6			
AR	P	0 exist	0 exist
LA	P	0 exist	0 exist
NM	P	0 exist	0 exist
OK	P	0 exist	0 exist
TX	P	0 exist	0 exist
EPA Region 7			
IA	DI	Federal program only *No credit for ban or waiver*	0 exist
KS	P	Permit required; requirements so stringent they serve as a de facto ban *No credit for ban; full credit for waiver*	0 exist
MO	P	Regs require individual permit; must meet MCLs at point of injection *No credit for ban; full credit for waiver*	0 exist
NE	P	Regs require individual permit; must meet MCLs at point of injection *No credit for ban; full credit for waiver*	0 exist
EPA Region 8			

Appendix C:
Summary of States' Class V UIC Well Inventories and Programs, and Implications for the Economic Analysis

State	Primacy or DI	Motor Vehicle Waste Disposal Wells	Large-Capacity Cesspools
CO	DI	0 exist	0 exist
MT	DI	Federal program only *No credit for ban or waiver*	0 exist
ND	P	Can be authorized by rule or permit, but are banned in WHPAs; generally, permits would require MCLs be met at point of injection *Full credit for ban and waiver in SWPAs; no credit outside SWPAs*	0 exist
SD	DI	No Class V wells allowed in WHPAs, but not written policy (only federal program on books) *No credit for ban or waiver*	0 exist
UT	P	Can be authorized by rule or permit, but can be banned in WHPAs *No credit*	0 exist
WY	P	Regs ban new wells statewide; existing wells subject to individual or general permit requirements, but can be banned in WHPAs; permits do not require MCLs to be met at point of injection *No credit for ban or waiver*	0 exist
Tribal	DI	Federal program only *No credit for ban or waiver*	0 exist
EPA Region 9			
AZ	DI	0 exist	0 exist
CA	DI	Federal program only *No credit for ban or waiver*	Federal program only *No credit*

Appendix C:
Summary of States' Class V UIC Well Inventories and Programs, and Implications for the Economic Analysis

State	Primacy or DI	Motor Vehicle Waste Disposal Wells	Large-Capacity Cesspools
HI	DI	0 exist	Federal program; in addition, HI regs ban new cesspools after 2000 and require existing cesspools to get individual permits *No credit*
NV	P	0 exist	0 exist
GU	P	0 exist	0 exist
AS	DI	0 exist	0 exist
CNMI	P	0 exist	Rule authorized *No credit*
Tribal	DI	Federal program only *No credit for ban or waiver*	0 exist
EPA Region 10			
AK	DI	0 exist	0 exist
ID	P	Wells deeper than 18 feet get permitted; wells 18 feet or less are rule authorized; unclear what permit requirements apply *No credit for ban or waiver*	Told that cesspools banned; however, regs say cesspools deeper than 18 feet get permitted and cesspools that are 18 feet or less are rule authorized; unclear what permit requirements apply *No credit*
OR	P	Must meet standard (stricter than MCL) in ground water, not at point of injection *No credit for ban or waiver*	Administrative rules ban new and existing cesspools *Full credit*
WA	P	Banned since 1984; wells existing at that time had 1 year to apply for permit; must meet quality standards in groundwater, not at point of injection *No credit for ban or waiver*	Told that a ban exists *Full credit*
Tribal	DI	Federal program only *No credit for ban or waiver*	0 exist

Appendix D

Estimating the Number of Wells in Ground Water Protection Areas

State	G-CWS			G-NTNC			Total Land Area[B]	Urban Land Area[C]	Non-Urban Land Area	GWPAs as a % of Non-Urban Land	MOTOR VEHICLE WELLS			LARGE-CAPACITY CESSPOOLS		
	Estimated Number of Wells[A]	Radius Around Each Well (miles)	Land Area Within Radii of All Wells (sq. miles)	Estimated Number of Wells[A]	Radius Around Each Well (miles)	Land Area Within Radii of All Wells (sq. miles)					UIC Well Estimate	UIC Wells in GWPA (1:1 Ratio)	UIC Wells in GWPA (2:1 Ratio)	UIC Well Estimate	UIC Wells in GWPA (1:1 Ratio)	UIC Wells in GWPA (2:1 Ratio)
Column	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Calculation	Given	Given	A*(pi*B2)	Given	Given	D*(pi*E2)	Given	Given	G-H	(C+F)/I	Given	J*K	L*2	Given	J*O	P*2
CT	419	0.5	329	444	0.25	87	4,872	1,252	3,620	11.50%	0	0.0	0.0	0	0.0	0.0
MA	353	0.5	277	226	0.14	14	7,824	2,148	5,676	5.13%	694	35.6	71.2	0	0.0	0.0
ME	309	0.5	243	344	0.25	68	33,215	722	32,493	0.95%	3,000	28.6	57.3	0	0.0	0.0
NH	612	0.5	481	414	0.25	81	8,993	513	8,480	6.63%	918	60.8	121.7	0	0.0	0.0
RI	55	0.08	1	69	0.08	1	1,055	298	757	0.33%	1,200	4.0	7.9	0	0.0	0.0
VT	302	0.5	237	102	0.25	20	9,273	141	9,132	2.82%	46	1.3	2.6	0	0.0	0.0
NJ	489	0.5	384	1,009	0.25	198	7,468	2,425	5,043	11.54%	782	90.3	180.5	0	0.0	0.0
NY	1,890	0.5	1,484	690	0.25	135	47,377	3,376	44,001	3.68%	3,000	110.4	220.9	222	8.2	16.4
PR	240	0.3	68	44	0.3	12	3,427	0	3,427	2.34%	0	0.0	0.0	0	0.0	0.0
VI	0	0.5	0	0	0.25	0	134	0	134	0.00%	100	0.0	0.0	500	0.0	0.0
DC	0	0.5	0	0	0.25	0	61	61	0	0.00%	0	0.0	0.0	0	0.0	0.0
DE	224	0.5	176	76	0.25	15	1,955	208	1,747	10.92%	0	0.0	0.0	25	2.7	5.5
MD	447	0.5	351	495	0.25	97	9,837	1,576	8,261	5.43%	370	20.1	40.2	0	0.0	0.0
PA	1,746	0.5	1,371	1,248	0.25	245	44,888	3,012	41,876	3.86%	1,700	65.6	131.2	0	0.0	0.0
VA	1,085	0.5	852	649	0.25	127	39,704	2,186	37,518	2.61%	771	20.1	40.3	0	0.0	0.0
WV	262	0.5	206	177	0.25	35	24,119	381	23,738	1.01%	53	0.5	1.1	299	3.0	6.1
AL	273	0.5	214	46	0.25	9	50,708	2,675	48,033	0.47%	0	0.0	0.0	0	0.0	0.0
FL	1,908	1	5,994	1,111	1	3,490	54,153	5,120	49,033	19.34%	0	0.0	0.0	410	79.2	158.5

Appendix D

Estimating the Number of Wells in Ground Water Protection Areas

State	G-CWS			G-NTNC			Total Land Area[B]	Urban Land Area[C]	Non-Urban Land Area	GWPAs as a % of Non-Urban Land	MOTOR VEHICLE WELLS			LARGE-CAPACITY CESSPOOLS		
	Estimated Number of Wells[A]	Radius Around Each Well (miles)	Land Area Within Radii of All Wells (sq. miles)	Estimated Number of Wells[A]	Radius Around Each Well (miles)	Land Area Within Radii of All Wells (sq. miles)					UIC Well Estimate	UIC Wells in GWPA (1:1 Ratio)	UIC Wells in GWPA (2:1 Ratio)	UIC Well Estimate	UIC Wells in GWPA (1:1 Ratio)	UIC Wells in GWPA (2:1 Ratio)
GA	1,459	0.5	1,146	291	0.25	57	58,056	2,808	55,248	2.18%	0	0.0	0.0	367	8.0	16.0
KY	107	0.5	84	80	0.25	16	39,669	1,054	38,615	0.26%	0	0.0	0.0	157	0.4	0.8
MS	1,138	0.5	894	123	0.25	24	47,233	1,127	46,106	1.99%	0	0.0	0.0	0	0.0	0.0
NC	1,853	0.5	1,455	652	0.25	128	48,843	2,260	46,583	3.40%	0	0.0	0.0	0	0.0	0.0
SC	541	0.5	425	248	0.4	125	30,203	1,424	28,779	1.91%	0	0.0	0.0	0	0.0	0.0
TN	170	0.5	134	58	0.25	11	41,155	2,357	38,798	0.37%	0	0.0	0.0	0	0.0	0.0
IL	1,139	0.19	129	445	0.19	50	55,645	3,029	52,616	0.34%	0	0.0	0.0	0	0.0	0.0
IN	798	0.6	903	692	0.6	783	35,932	1,779	34,153	4.93%	430	21.2	42.4	4	0.2	0.4
MI	1,149	0.4	578	1,718	0.25	337	56,954	2,660	54,294	1.69%	1,047	17.6	35.3	0	0.0	0.0
MN	895	0.5	703	429	0.25	84	79,617	1,837	77,780	1.01%	0	0.0	0.0	0	0.0	0.0
OH	1,027	0.5	807	1,112	0.25	218	41,004	3,603	37,401	2.74%	1,200	32.9	65.8	1,000	27.4	54.8
WI	1,101	0.5	865	1,049	0.25	206	54,314	1,576	52,738	2.03%	392	8.0	15.9	0	0.0	0.0
Tribal Prog.	0	0.5	0	0	0.25	0			0	0.00%	14	0.0	0.0	10	0.0	0.0
AR	394	0.25	77	45	0.25	9	52,078	1,222	50,856	0.17%	0	0.0	0.0	0	0.0	0.0
LA	1,159	0.5	910	232	0.25	46	44,521	1,609	42,912	2.23%	0	0.0	0.0	0	0.0	0.0
NM	576	0.5	452	147	0.25	29	121,335	795	120,540	0.40%	0	0.0	0.0	0	0.0	0.0
OK	461	0.5	362	122	0.25	24	68,782	1,821	66,961	0.58%	0	0.0	0.0	0	0.0	0.0
TX	3,451	0.25	678	730	0.25	143	262,017	7,662	254,355	0.32%	0	0.0	0.0	0	0.0	0.0
IA	950	0.5	746	133	0.25	26	55,695	1,099	54,596	1.41%	1,000	14.1	28.3	0	0.0	0.0
KS	519	0.5	408	66	0.25	13	81,778	932	80,846	0.52%	50	0.3	0.5	0	0.0	0.0

Appendix D

Estimating the Number of Wells in Ground Water Protection Areas

State	G-CWS			G-NTNC			Total Land Area[B]	Urban Land Area[C]	Non-Urban Land Area	GWPAs as a % of Non-Urban Land	MOTOR VEHICLE WELLS			LARGE-CAPACITY CESSPOOLS		
	Estimated Number of Wells[A]	Radius Around Each Well (miles)	Land Area Within Radii of All Wells (sq. miles)	Estimated Number of Wells[A]	Radius Around Each Well (miles)	Land Area Within Radii of All Wells (sq. miles)					UIC Well Estimate	UIC Wells in GWPA (1:1 Ratio)	UIC Wells in GWPA (2:1 Ratio)	UIC Well Estimate	UIC Wells in GWPA (1:1 Ratio)	UIC Wells in GWPA (2:1 Ratio)
MO	1,096	0.5	861	226	0.5	177	68,945	1,886	67,059	1.55%	100	1.5	3.1	0	0.0	0.0
NE	580	0.8	1,166	188	0.19	21	76,644	393	76,251	1.56%	200	3.1	6.2	0	0.0	0.0
CO	534	0.5	419	130	2.5	2,553	103,595	1,315	102,280	2.91%	0	0.0	0.0	0	0.0	0.0
MT	541	0.5	425	211	0.25	41	145,388	247	145,141	0.32%	129	0.4	0.8	0	0.0	0.0
ND	178	0.5	140	22	0.25	4	69,300	169	69,131	0.21%	174	0.4	0.7	0	0.0	0.0
SD	306	0.5	240	25	0.4	13	75,952	203	75,749	0.33%	1,329	4.4	8.9	0	0.0	0.0
UT	326	0.5	256	50	0.25	10	82,073	724	81,349	0.33%	163	0.5	1.1	0	0.0	0.0
WY	0	0.5	0	78	0.25	15	96,989	233	96,756	0.02%	60	0.0	0.0	0	0.0	0.0
Tribal Prog.	0	0.5	0	0	0.25	0			0	0.00%	3	0.0	0.0	0	0.0	0.0
AZ	742	0.5	583	214	0.25	42	113,508	2,038	111,470	0.56%	0	0.0	0.0	0	0.0	0.0
CA	2,784	0.43	1,617	1,004	0.25	197	156,299	8,157	148,142	1.22%	414	5.1	10.1	78	1.0	1.9
HI	96	0.5	75	12	0.25	2	6,425	644	5,781	1.34%	0	0.0	0.0	58	0.8	1.6
NV	244	0.5	192	91	0.25	18	109,894	940	108,954	0.19%	0	0.0	0.0	0	0.0	0.0
GU	9	0.5	7	2	0.25	0	210	0	210	3.55%	0	0.0	0.0	0	0.0	0.0
AS	0	0.5	0	0	0.25	0	0	0	0	0.00%	0	0.0	0.0	0	0.0	0.0
CNMI	30	0.5	24	6	0.25	1	184	0	184	13.45%	0	0.0	0.0	4	0.5	1.1
Tribal Prog.	0	0.5	0	0	0.25	0			0	0.00%	100	0.0	0.0	0	0.0	0.0
AK	494	0.5	388	0	0.25	0	570,833	650	570,183	0.07%	0	0.0	0.0	0	0.0	0.0
ID	651	0.5	511	265	0.25	52	82,412	322	82,090	0.69%	1,250	8.6	17.2	25	0.2	0.3
OR	663	0.5	521	332	0.25	65	96,003	828	95,175	0.62%	500	3.1	6.2	6,400	39.4	78.8

Appendix D

Estimating the Number of Wells in Ground Water Protection Areas

State	G-CWS			G-NTNC			Total Land Area[B]	Urban Land Area[C]	Non-Urban Land Area	GWPAs as a % of Non-Urban Land	MOTOR VEHICLE WELLS			LARGE-CAPACITY CESSPOOLS		
	Estimated Number of Wells[A]	Radius Around Each Well (miles)	Land Area Within Radii of All Wells (sq. miles)	Estimated Number of Wells[A]	Radius Around Each Well (miles)	Land Area Within Radii of All Wells (sq. miles)					UIC Well Estimate	UIC Wells in GWPA (1:1 Ratio)	UIC Wells in GWPA (2:1 Ratio)	UIC Well Estimate	UIC Wells in GWPA (1:1 Ratio)	UIC Wells in GWPA (2:1 Ratio)
WA	2,044	0.5	1,605	283	0.25	56	66,511	1,773	64,738	2.57%	500	12.8	25.7	25	0.6	1.3
Tribal Prog.	0	0.5	0	0	0.25	0			0	0.00%	4	0.0	0.0	0	0.0	0.0
Total	40,819	NA	33,454	18,655	NA	10,234	3,545,059	87,270	3,457,789	NA	21,692	571.5	1,142.9	9,583	171.6	343.3

[A] USEPA, "Drinking Water Baseline Handbook," First Edition, Draft, February 24, 1999.
[B] The World Almanac and Book of Facts, Pharos Books, New York, 1991 and 1994 County Census data.
[C] Census Bureau Mable/Geocorr Geographic Correspondence Engine [www.census.gov/plue/].

Appendix E

Estimating the Number of Wells in Sensitive Ground Water Areas

State	Total Land Area (millions of sq. km)	Land Area: Karst (millions of sq. km)	% of Land Area: Karst	Land Area: Sole Source (millions of sq. km)	% of Land Area: Sole-Source	Land Area: Fractured Bedrock (millions of sq. km)	% of Land Area: Fractured Bedrock	Land Area: Sand/ Alluvial (millions of sq. km)	% of Land Area: Sand/ Alluvial	Land Area: Any Criterion (millions of sq. km)	% of Land Area: Any[A] Criterion	MOTOR VEHICLE WELLS		LARGE-CAPACITY CESSPOOLS	
												UIC Well Estimate	UIC Wells in Sensitive Areas	UIC Well Estimate	UIC Wells in Sensitive Areas
CT	12,813	596	5%	2,899	23%	2,988	23%	2,922	23%	7,517	59%	0	0	0	0
MA	21,077	1,205	6%	6,528	31%	2,166	10%	3,344	16%	10,024	48%	694	330	0	0
ME	83,781	7,990	10%	105	0%	1,924	2%	4,299	5%	11,783	14%	3,000	422	0	0
NH	23,999	790	3%	0	0%	0	0%	2,541	11%	3,246	14%	918	124	0	0
RI	146,095	0	0%	928	1%	0	0%	91	0%	1,019	1%	1,200	8	0	0
VT	24,854	7,179	29%	0	0%	2,414	10%	2,702	11%	10,557	42%	46	19	0	0
NJ	19,743	1,652	8%	13,147	67%	5,890	30%	11,887	60%	18,814	95%	782	745	0	0
NY	125,849	26,950	21%	13,647	11%	25,304	20%	15,526	12%	60,527	48%	3,000	1,443	222	107
PR	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100%	0	0	0	0
VI	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100%	100	100	500	500
DC	170	0	0%	18	10%	0	0%	104	61%	122	72%	0	0	0	0
DE	5,242	22	0%	5,009	96%	0	0%	4,920	94%	5,044	96%	0	0	25	24
MD	25,649	3,259	13%	4,931	19%	4,651	18%	13,916	54%	23,224	91%	370	335	0	0
PA	117,427	30,016	26%	2,431	2%	87,757	75%	9,675	8%	95,101	81%	1,700	1,377	0	0
VA	103,482	17,120	17%	1,852	2%	36,626	35%	21,870	21%	60,351	58%	771	450	0	0
WV	62,729	11,089	18%	25	0%	58,427	93%	2,278	4%	60,177	96%	53	51	299	287
AL	134,007	38,522	29%	0	0%	39,273	29%	77,053	57%	117,842	88%	0	0	0	0
FL	146,095	136,415	93%	12,591	9%	36,426	25%	86,047	59%	144,815	99%	0	0	410	406

Appendix E

Estimating the Number of Wells in Sensitive Ground Water Areas

State	Total Land Area (millions of sq. km)	Land Area: Karst (millions of sq. km)	% of Land Area: Karst	Land Area: Sole Source (millions of sq. km)	% of Land Area: Sole-Source	Land Area: Fractured Bedrock (millions of sq. km)	% of Land Area: Fractured Bedrock	Land Area: Sand/ Alluvial (millions of sq. km)	% of Land Area: Sand/ Alluvial	Land Area: Any Criterion (millions of sq. km)	% of Land Area: Any[A] Criterion	MOTOR VEHICLE WELLS		LARGE-CAPACITY CESSPOOLS	
												UIC Well Estimate	UIC Wells in Sensitive Areas	UIC Well Estimate	UIC Wells in Sensitive Areas
GA	151,906	86,077	57%	0	0%	17,074	11%	72,238	48%	98,650	65%	0	0	367	238
KY	104,446	44,142	42%	0	0%	61,105	59%	10,744	10%	90,045	86%	0	0	157	135
MS	123,373	13,381	11%	42,811	35%	0	0%	103,390	84%	111,328	90%	0	0	0	0
NC	127,752	6,512	5%	0	0%	8,317	7%	56,847	44%	65,651	51%	0	0	0	0
SC	80,089	21,055	26%	0	0%	0	0%	50,416	63%	50,432	63%	0	0	0	0
TN	108,999	51,502	47%	0	0%	58,476	54%	27,555	25%	95,098	87%	0	0	0	0
IL	145,773	37,973	26%	0	0%	127,980	88%	26,626	18%	140,541	96%	0	0	0	0
IN	94,248	40,832	43%	1,195	1%	55,741	59%	15,974	17%	71,516	76%	430	326	4	3
MI	153,912	31,199	20%	0	0%	59,861	39%	15,712	10%	81,696	53%	1,047	556	0	0
MN	218,838	19,275	9%	9,930	5%	55,515	25%	1,425	1%	69,290	32%	0	0	0	0
OH	106,722	36,331	34%	4,654	4%	85,027	80%	15,020	14%	93,004	87%	1,200	1,046	1,000	871
WI	144,533	44,421	31%	0	0%	75,667	52%	10,474	7%	90,883	63%	392	247	0	0
Tribal Program	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	70%	14	10	10	7
AR	137,030	24,578	18%	0	0%	19,486	14%	73,759	54%	96,793	71%	0	0	0	0
LA	120,972	2,750	2%	78,957	65%	0	0%	117,711	97%	118,318	98%	0	0	0	0
NM	315,289	97,197	31%	1	0%	70,266	22%	85,337	27%	217,017	69%	0	0	0	0
OK	181,308	38,754	21%	1,281	1%	28,227	16%	38,118	21%	82,666	46%	0	0	0	0

Appendix E

Estimating the Number of Wells in Sensitive Ground Water Areas

State	Total Land Area (millions of sq. km)	Land Area: Karst (millions of sq. km)	% of Land Area: Karst	Land Area: Sole Source (millions of sq. km)	% of Land Area: Sole-Source	Land Area: Fractured Bedrock (millions of sq. km)	% of Land Area: Fractured Bedrock	Land Area: Sand/ Alluvial (millions of sq. km)	% of Land Area: Sand/ Alluvial	Land Area: Any Criterion (millions of sq. km)	% of Land Area: Any[A] Criterion	MOTOR VEHICLE WELLS		LARGE-CAPACITY CESSPOOLS	
												UIC Well Estimate	UIC Wells in Sensitive Areas	UIC Well Estimate	UIC Wells in Sensitive Areas
TX	684,846	196,352	29%	4,771	1%	124,852	18%	343,584	50%	510,340	75%	0	0	0	0
IA	145,721	63,733	44%	0	0%	77,131	53%	22,179	15%	100,973	69%	1,000	693	0	0
KS	212,880	36,440	17%	0	0%	10,022	5%	105,078	49%	139,257	65%	50	33	0	0
MO	180,887	101,557	56%	0	0%	98,425	54%	24,555	14%	129,508	72%	100	72	0	0
NE	200,282	14,487	7%	0	0%	7,938	4%	177,365	89%	184,392	92%	200	184	0	0
CO	269,696	35,455	13%	3	0%	89,033	33%	57,671	21%	171,701	64%	0	0	0	0
MT	381,191	32,008	8%	6,794	2%	120,016	31%	44,125	12%	179,337	47%	129	61	0	0
ND	183,480	596	0%	0	0%	107,680	59%	6,588	4%	108,296	59%	174	103	0	0
SD	199,900	25,829	13%	0	0%	37,805	19%	25,731	13%	82,706	41%	1,329	550	0	0
UT	219,830	23,682	11%	0	0%	121,336	55%	66,687	30%	190,208	87%	163	141	0	0
WY	253,258	22,778	9%	20,622	8%	155,191	61%	31,868	13%	192,879	76%	60	46	0	0
Tribal Program	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	70%	3	2	0	0
AZ	294,569	50,291	17%	42,866	15%	73,310	25%	99,925	34%	219,418	74%	0	0	0	0
CA	408,746	19,031	5%	39,215	10%	19,214	5%	158,944	39%	204,921	50%	414	208	78	39
HI	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100%	0	0	58	58
NV	286,511	27,454	10%	0	0%	36,916	13%	146,081	51%	191,740	67%	0	0	0	0
GU	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100%	0	0	0	0

Appendix E

Estimating the Number of Wells in Sensitive Ground Water Areas

State	Total Land Area (millions of sq. km)	Land Area: Karst (millions of sq. km)	% of Land Area: Karst	Land Area: Sole Source (millions of sq. km)	% of Land Area: Sole-Source	Land Area: Fractured Bedrock (millions of sq. km)	% of Land Area: Fractured Bedrock	Land Area: Sand/ Alluvial (millions of sq. km)	% of Land Area: Sand/ Alluvial	Land Area: Any Criterion (millions of sq. km)	% of Land Area: Any[A] Criterion	MOTOR VEHICLE WELLS		LARGE-CAPACITY CESSPOOLS	
												UIC Well Estimate	UIC Wells in Sensitive Areas	UIC Well Estimate	UIC Wells in Sensitive Areas
AS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100%	0	0	0	0
CNMI	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100%	0	0	4	4
Tribal Program	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	70%	100	70	0	0
AK	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	69%	0	0	0	0
ID	215,801	44,633	21%	8,336	4%	71,016	33%	46,704	22%	136,291	63%	1,250	789	25	16
OR	251,213	14,628	6%	11,942	5%	139,206	55%	45,850	18%	193,563	77%	500	385	6,400	4,931
WA	174,650	7,910	5%	24,615	14%	40,787	23%	62,502	36%	119,245	68%	500	341	25	17
Tribal Program	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	70%	4	3	0	0
Total	7,931,666	1,595,644	NA	362,104	NA	2,356,470	NA	2,445,957	NA	5,257,867	NA	21,688	11,265	9,583	7,644

[A] The percent land area of any criterion represents the sum of all sensitive areas not counting any overlap (i.e., it is commonly less than the sum of each area individually because the areas commonly overlap).

Appendix F
Sampling and Monitoring Costs for Motor Vehicle Wells

Detailed Compliance Costs for Annual Injectate Monitoring:

Waste Stream E and F	Quantity	Unit	Unit Cost	Total
1. Contracted Sampling Labor	1	hr	$62.50	$62.50
2. Oil and Grease	1	each	$92.10	$92.10
3. VOCs (SW.8620)	1	each	$276.30	$276.30
4. Decontamination/ Disposable Materials	2	each	$6.92	$13.84
Subtotal per event				$444.74
Events	1			$444.74
Contact Laboratory/Supervise Sampling	1	hr - technical	$26.35	$26.35
Reporting/Recordkeeping	4	hr - technical	$26.35	$105.40
Reporting/Recordkeeping	½	hr - clerical	$18.35	$9.18
Total				$585.67

Waste Streams A, B, G, and H	Quantity	Unit	Unit Cost	Total
1. Contracted Sampling Labor	1	hr	$62.50	$62.50
2. Oil and Grease	1	each	$92.10	$92.10
3. Decontamination/ Disposable Materials	2	each	$6.92	$13.84
Subtotal per event				$352.64
Events	1			$352.64
Contact Laboratory/Supervise Sampling	1	hr - technical	$26.35	$26.35
Reporting/Recordkeeping	4	hr - technical	$26.35	$105.40
Reporting/Recordkeeping	½	hr - clerical	$18.35	$9.18
Total				$493.57

Waste Streams C, D, I, and J	Quantity	Unit	Unit Cost	Total
1. Contracted Sampling Labor	1	hr	$62.50	$62.50
2. Metals Screen, Flame AA	5	each	$18.42	$92.10
3. Metals Screen, Furnace	2	each	$30.70	$61.40
4. VOCs (SW 8620)	1	each	$276.30	$276.30
5. Decontamination/ Disposable Materials	2	each	$6.92	$13.84
Subtotal per event				$506.14
Events	1			$506.14
Contact Laboratory/Supervise Sampling	1	hr - technical	$26.35	$26.35
Reporting/Recordkeeping	4	hr - technical	$26.35	$105.40
Reporting/Recordkeeping	½	hr - clerical	$18.35	$9.18
Total				$647.07

Detailed Compliance Costs for Quarterly Injectate Monitoring:

Waste Stream E and F	Quantity	Unit	Unit Cost	Total
1. Contracted Sampling Labor	1	hr	$62.50	$62.50
2. Oil and Grease	1	each	$92.10	$92.10
3. VOCs (SW 8620)	1	each	$276.30	$276.30
4. Decontamination/ Disposable Materials	2	each	$6.92	$13.84
Subtotal per event				$444.74
Events	4			$1,778.96
Contact Laboratory/Supervise Sampling	4	hr - technical	$26.35	$105.40
Reporting/Recordkeeping	4	hr - technical	$26.35	$105.40
Reporting/Recordkeeping	2	hr - clerical	$18.35	$36.70
Total				$2,026.46

Waste Streams A, B, G, and H	Quantity	Unit	Unit Cost	Total
1. Contracted Sampling Labor	1	hr	$62.50	$62.50
2. Oil and Grease	1	each	$92.10	$92.10
3. Decontamination/ Disposable Materials	2	each	$6.92	$13.84
Subtotal per event				$352.64
Events	4			$1,410.56
Contact Laboratory/Supervise Sampling	4	hr - technical	$26.35	$105.40
Reporting/Recordkeeping	4.	hr - technical	$26.35	$105.40
Reporting/Recordkeeping	2	hr - clerical	$18.35	$36.70
Total				$1,658.06

Waste Streams C, D, I, and J	Quantity	Unit	Unit Cost	Total
1. Contracted Sampling Labor	1	hr	$62.50	$62.50
2. Metals Screen, Flame AA	5	each	$18.42	$92.10
3. Metals Screen, Furnace	2	each	$30.70	$61.40
4. VOCs (SW 8620)	1	each	$276.30	$276.30
5. Decontamination/ Disposable Materials	2	each	$6.92	$13.84
Subtotal per event				$506.14
Events	4			$2,024.56
Contact Laboratory/Supervise Sampling	4	hr - technical	$26.35	$105.40
Reporting/recordkeeping	4	hr - technical	$26.35	$105.40
Reporting/Recordkeeping	2	hr - clerical	$18.35	$36.70
Total				$2,272.06

Appendix G
On-Site Treatment Costs

Capital costs for on-site wastewater treatment facilities are developed for each waste stream scenario. Capital costs include influent and effluent flow equalization and storage, pumps, instrumentation, and installation. The following indirect costs are applied to the on-site treatment system capital subtotal:

- Permitting, administration, and legal fees at 5 percent
- Contractor's overhead and profit at 15 percent
- Engineering design at 10 percent
- Contingency at 10 percent of the total capital (direct and indirect) cost

Capital costs of on-site treatment depend upon the waste stream characterization (organic waste, organic and metal waste, or motor vehicle service-related waste) and the flow rate of the waste stream (high or low). Waste stream scenario A (low flow, low concentration of organic waste) has the least expensive on-site treatment cost at $17,000, while scenario J (high flow, high concentration of organic and metal waste) has the most expensive on-site treatment cost at $95,300 per well. Exhibit G-1 presents capital and O&M costs for on-site treatment systems by waste stream scenario.

On-site treatment system O&M costs include labor, materials, and utilities. The labor cost is assumed to be a function of the treatment system, hours of operation, maintenance calls, system complexity, number of changeouts (e.g., replacement of pre- and post-filters, granulated activated carbon [GAC] filters, and ion exchange column), and sludge production rate. Treatment system materials include filters, GAC units, coagulant, acid/base, and ion exchange resin. Utility costs primarily consist of electricity costs. A 5 percent contingency fee for the on-site treatment system O&M costs is assumed.

Each on-site management alternative assumes annual monitoring to demonstrate compliance. This cost is directly related to sampling frequency and could be incurred as often as monthly under state or local ordinances. On-site management O&M costs range from $2,600 per well for waste stream scenario A to $21,900 for waste stream scenario F2.

Exhibit G-1
Capital and O&M Costs of On-site Treatment

Waste Stream Type	Flow rate (gal/yr)	On-site Treatment Capital	On-site Treatment O&M
A	1,560	$17,000	$2,600
B	1,560	$64,600	$4,600
C	1,560	$38,800	$5,700
D	1,560	$84,000	$8,600
E1	2,000	$20,000	$3,300
E2	2,000	$75,900	$5,900
F1	20,000	$23,000	$17,000
F2	20,000	$78,900	$21,900
G	10,400	$27,200	$9,200
H	10,400	$75,200	$11,800
I	10,400	$49,100	$11,300
J	10,400	$95,300	$18,800

Appendix H: Average Capital and O/M Costs for Wells Under the Ban Options (1a, 2a, and 3a)

Waste Type/ BMP	Implement BMPs					Close Well						
	Fraction 100%	Unit Capital $	Total Capital $	Unit O&M $/yr	Total O&M $/yr	Fraction 100%	Pre-Clos. Notification Unit Capital $	Pre-Clos. Notification Total Capital $	Close Well Unit Capital $	Close Well Total Capital $	Initial Soil Samp Unit Capital $	Initial Soil Samp Total Capital $
A-1	1	1,727	1,727	1,267	1,267	1	41	41	1,564	1,564	3,871	3,871
A-2	1	7,484	7,484	1,686	1,686	1	41	41	1,564	1,564	3,871	3,871
A-3	1	26,966	26,966	4,606	4,606	1	41	41	3,751	3,751	3,871	3,871
B-1	1	1,727	1,727	1,267	1,267	1	41	41	1,564	1,564	3,871	3,871
B-2	1	7,484	7,484	1,686	1,686	1	41	41	1,564	1,564	3,871	3,871
B-3	1	26,966	26,966	4,606	4,606	1	41	41	3,751	3,751	3,871	3,871
C-1	1	1,727	1,727	1,267	1,267	1	41	41	1,564	1,564	3,871	3,871
C-2	1	7,484	7,484	1,686	1,686	1	41	41	1,564	1,564	3,871	3,871
C-3	1	26,966	26,966	4,606	4,606	1	41	41	3,751	3,751	3,871	3,871
C-4	1	126,103	126,103	2,994	2,994	1	41	41	3,751	3,751	3,871	3,871
D-1	1	1,727	1,727	1,267	1,267	1	41	41	1,564	1,564	3,871	3,871
D-2	1	7,484	7,484	1,686	1,686	1	41	41	1,564	1,564	3,871	3,871
D-3	1	26,966	26,966	4,606	4,606	1	41	41	3,751	3,751	3,871	3,871
D-4	1	126,103	126,103	2,994	2,994	1	41	41	3,751	3,751	3,871	3,871
E1-2	1	7,484	7,484	1,686	1,686	1	41	41	1,564	1,564	3,871	3,871
E2-2	1	7,484	7,484	1,686	1,686	1	41	41	1,564	1,564	3,871	3,871
F1-2	1	7,484	7,484	1,686	1,686	1	41	41	1,564	1,564	3,871	3,871
F2-2	1	7,484	7,484	1,686	1,686	1	41	41	1,564	1,564	3,871	3,871
G-1	1	1,727	1,727	1,267	1,267	1	41	41	1,564	1,564	3,871	3,871
G-2	1	7,484	7,484	1,686	1,686	1	41	41	1,564	1,564	3,871	3,871
G-3	1	26,966	26,966	4,606	4,606	1	41	41	3,751	3,751	3,871	3,871
H-1	1	1,727	1,727	1,267	1,267	1	41	41	1,564	1,564	3,871	3,871
H-2	1	7,484	7,484	1,686	1,686	1	41	41	1,564	1,564	3,871	3,871
H-3	1	26,966	26,966	4,606	4,606	1	41	41	3,751	3,751	3,871	3,871
I-1	1	1,727	1,727	1,267	1,267	1	41	41	1,564	1,564	3,871	3,871
I-2	1	7,484	7,484	1,686	1,686	1	41	41	1,564	1,564	3,871	3,871
I-3	1	26,966	26,966	4,606	4,606	1	41	41	3,751	3,751	3,871	3,871
I-4	1	126,103	126,103	2,994	2,994	1	41	41	3,751	3,751	3,871	3,871
J-1	1	1,727	1,727	1,267	1,267	1	41	41	1,564	1,564	3,871	3,871
J-2	1	7,484	7,484	1,686	1,686	1	41	41	1,564	1,564	3,871	3,871
J-3	1	26,966	26,966	4,606	4,606	1	41	41	3,751	3,751	3,871	3,871
J-4	1	126,103	126,103	2,994	2,994	1	41	41	3,751	3,751	3,871	3,871

Appendix H: Average Capital and O/M Costs for Wells Under the Ban Options (1a, 2a, and 3a)

Waste Type/ BMP	Send Waste Off-site														
	POTW					Waste Exchange					Wastewater Treatment Facility				
	Fraction	Unit Capital $	Total Capital $	Unit O&M $/yr	Total O&M $/yr	Fraction	Unit Capital $	Total Capital $	Unit O&M $/yr	Total O&M $/yr	Fraction	Unit Capital $	Total Capital $	Unit O&M $/yr	Total O&M $/yr
A-1	0.5	2,449	1,225	1,462	731		-	-	-	-	0.5	2,210	1,105	2,068	1,034
A-2	0.5	2,449	1,225	1,462	731		-	-	-	-	0.5	2,210	1,105	2,068	1,034
A-3	0.5	2,449	1,225	1,462	731		-	-	-	-	0.5	2,210	1,105	2,068	1,034
B-1	0.25	2,449	612	1,462	366	0.5	4,061	2,031	789	395	0.25	1,865	466	6,304	1,576
B-2	0.25	2,449	612	1,462	366	0.5	4,061	2,031	789	395	0.25	1,865	466	6,304	1,576
B-3	0.25	2,449	612	1,462	366	0.5	4,061	2,031	789	395	0.25	1,865	466	6,304	1,576
C-1	0.5	2,805	1,403	783	392		-	-	-	-	0.5	2,210	1,105	2,068	1,034
C-2	0.5	2,805	1,403	783	392		-	-	-	-	0.5	2,210	1,105	2,068	1,034
C-3	0.5	2,805	1,403	783	392		-	-	-	-	0.5	2,210	1,105	2,068	1,034
C-4	0.5	2,805	1,403	783	392		-	-	-	-	0.5	2,210	1,105	2,068	1,034
D-1		-	-	-	-	0.5	4,417	2,209	1,449	725	0.5	1,865	933	6,304	3,152
D-2		-	-	-	-	0.5	4,417	2,209	1,449	725	0.5	1,865	933	6,304	3,152
D-3		-	-	-	-	0.5	4,417	2,209	1,449	725	0.5	1,865	933	6,304	3,152
D-4		-	-	-	-	0.5	4,417	2,209	1,449	725	0.5	1,865	933	6,304	3,152
E1-2	0.5	2,504	1,252	783	392		-	-	-	-	0.5	2,210	1,105	2,409	1,205
E2-2	0.25	2,648	662	1,174	294	0.5	4,951	2,476	1,237	619	0.25	2,210	553	6,766	1,692
F1-2	0.5	6,074	3,037	1,580	790		-	-	-	-	0.5	5,780	2,890	16,728	8,364
F2-2	0.25	6,218	1,555	1,971	493	0.5	8,521	4,261	2,031	1,016	0.25	5,780	1,445	25,666	6,417
G-1	0.5	6,019	3,010	735	368		-	-	-	-	0.5	5,780	2,890	8,919	4,460
G-2	0.5	6,019	3,010	735	368		-	-	-	-	0.5	5,780	2,890	8,919	4,460
G-3	0.5	6,019	3,010	735	368		-	-	-	-	0.5	5,780	2,890	8,919	4,460
H-1	0.25	6,019	1,505	735	184	0.5	6,842	3,421	730	365	0.25	3,264	816	15,586	3,897
H-2	0.25	6,019	1,505	735	184	0.5	6,842	3,421	730	365	0.25	3,264	816	15,586	3,897
H-3	0.25	6,019	1,505	735	184	0.5	6,842	3,421	730	365	0.25	3,264	816	15,586	3,897
I-1	0.5	6,375	3,188	791	396		-	-	-	-	0.5	5,780	2,890	8,919	4,460
I-2	0.5	6,375	3,188	791	396		-	-	-	-	0.5	5,780	2,890	8,919	4,460
I-3	0.5	6,375	3,188	791	396		-	-	-	-	0.5	5,780	2,890	8,919	4,460
I-4	0.5	6,375	3,188	791	396		-	-	-	-	0.5	5,780	2,890	8,919	4,460
J-1		-	-	-	-	0.5	10,059	5,030	9,087	4,544	0.5	3,264	1,632	15,586	7,793
J-2		-	-	-	-	0.5	10,059	5,030	9,087	4,544	0.5	3,264	1,632	15,586	7,793
J-3		-	-	-	-	0.5	10,059	5,030	9,087	4,544	0.5	3,264	1,632	15,586	7,793
J-4		-	-	-	-	0.5	10,059	5,030	9,087	4,544	0.5	3,264	1,632	15,586	7,793

Appendix H: Average Capital and O/M Costs for Wells Under the Ban Options (1a, 2a, and 3a)

Waste Type/ BMP	Soil Remediation Costs											
	Sampling			soil disposal-Haz thermal treat.			soil disposal NH landfill			soil disposal NH thermal treat.		
	Fraction 35%(closure)	Unit Capital $	Total Capital $	Fraction 1/3 remed	Unit capital $	Total Capital $	Fraction 1/3 remed	Unit capital $	Total Capital $	Fraction 1/3 remed	Unit capital $	Total Capital $
A-1	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
A-2	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
A-3	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
B-1	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
B-2	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
B-3	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
C-1	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
C-2	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
C-3	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
C-4	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
D-1	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
D-2	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
D-3	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
D-4	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
E1-2	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
E2-2	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
F1-2	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
F2-2	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
G-1	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
G-2	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
G-3	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
H-1	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
H-2	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
H-3	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
I-1	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
I-2	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
I-3	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
I-4	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
J-1	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
J-2	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
J-3	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569
J-4	0.35	3,871	1,355	0.12	24,248	2,832	0.12	3,752	438	0.12	4,872	569

Appendix H: Average Capital and O/M Costs for Wells Under the Ban Options (1a, 2a, and 3a)

Waste Type/ BMP	Fraction 100%	Unit Capital $	Total Capital $	Annual Capital $/yr	O&M $/yr	Total Annual Cost $/yr
A-1	1	164	164	1,331	3,073	4,404
A-2	1	164	164	1,846	3,497	5,343
A-3	1	164	164	3,783	6,457	10,240
B-1	1	164	164	1,401	3,651	5,052
B-2	1	164	164	1,916	4,076	5,992
B-3	1	164	164	3,853	7,035	10,888
C-1	1	164	164	1,347	2,729	4,076
C-2	1	164	164	1,862	3,153	5,015
C-3	1	164	164	3,799	6,113	9,912
C-4	1	164	164	12,662	4,479	17,141
D-1	1	164	164	1,404	5,213	6,616
D-2	1	164	164	1,918	5,637	7,556
D-3	1	164	164	3,856	8,597	12,452
D-4	1	164	164	12,719	6,963	19,682
E1-2	1	164	164	1,848	3,326	5,174
E2-2	1	164	164	1,968	4,347	6,315
F1-2	1	164	164	2,168	10,986	13,153
F2-2	1	164	164	2,287	9,740	12,027
G-1	1	164	164	1,650	6,176	7,826
G-2	1	164	164	2,165	6,601	8,766
G-3	1	164	164	4,102	9,560	13,662
H-1	1	164	164	1,636	5,789	7,425
H-2	1	164	164	2,151	6,214	8,365
H-3	1	164	164	4,088	9,173	13,261
I-1	1	164	164	1,666	6,204	7,871
I-2	1	164	164	2,181	6,629	8,810
I-3	1	164	164	4,118	9,588	13,706
I-4	1	164	164	12,981	7,955	20,936
J-1	1	164	164	1,718	13,786	15,505
J-2	1	164	164	2,233	14,211	16,444
J-3	1	164	164	4,170	17,170	21,341
J-4	1	164	164	13,034	15,537	28,570

Appendix I: Average Capital and O/M Costs of Wells under the Ban with Wavier Options (1b, 2b, and 3b)

Waste Type/ BMP	Monitoring Costs							Sludge Disposal			Implement BMPs				
	Fraction % wavier	Initial Unit Capital $	Initial Total capital $	Annual Injectate Unit O&M $/yr	Annual Injectate Tot. O&M $/yr	Annual Sludge Unit O&M $/yr	Annual Sludge Tot. O&M $/yr	Fraction 2/3 wavier	Unit Capital $	Total Capital $	Fraction 100%	Unit Capital $	Total Capital $	Unit O&M $/yr	Total O&M $/yr
A-1	0.725	3,270	2,371	494	358	1,192	864.20	0.48	737	355.86	1	1,727	1,727	1,267	1,267
A-2	0.725	3,270	2,371	494	358	1,192	864.20	0.48	737	355.86	1	7,484	7,484	1,686	1,686
A-3	0.725	3,270	2,371	494	358	1,192	864.20	0.48	737	355.86	1	26,966	26,966	4,606	4,606
B-1	0.725	3,270	2,371	494	358	1,192	864.20	0.48	737	355.86	1	1,727	1,727	1,267	1,267
B-2	0.725	3,270	2,371	494	358	1,192	864.20	0.48	737	355.86	1	7,484	7,484	1,686	1,686
B-3	0.725	3,270	2,371	494	358	1,192	864.20	0.48	737	355.86	1	26,966	26,966	4,606	4,606
C-1	0.725	4,563	3,308	647	469	1,192	864.20	0.48	737	355.86	1	1,727	1,727	1,267	1,267
C-2	0.725	4,563	3,308	647	469	1,192	864.20	0.48	737	355.86	1	7,484	7,484	1,686	1,686
C-3	0.725	4,563	3,308	647	469	1,192	864.20	0.48	737	355.86	1	26,966	26,966	4,606	4,606
C-4	0.725	4,563	3,308	647	469	1,192	864.20	0.48	737	355.86	1	126,103	126,103	2,994	2,994
D-1	0.725	4,563	3,308	647	469	1,192	864.20	0.48	737	355.86	1	1,727	1,727	1,267	1,267
D-2	0.725	4,563	3,308	647	469	1,192	864.20	0.48	737	355.86	1	7,484	7,484	1,686	1,686
D-3	0.725	4,563	3,308	647	469	1,192	864.20	0.48	737	355.86	1	26,966	26,966	4,606	4,606
D-4	0.725	4,563	3,308	647	469	1,192	864.20	0.48	737	355.86	1	126,103	126,103	2,994	2,994
E1-2	0.725	4,046	2,933	586	425	1,192	864.20	0.48	737	355.86	1	7,484	7,484	1,686	1,686
E2-2	0.725	4,046	2,933	586	425	1,192	864.20	0.48	737	355.86	1	7,484	7,484	1,686	1,686
F1-2	0.725	4,046	2,933	586	425	1,192	864.20	0.48	737	355.86	1	7,484	7,484	1,686	1,686
F2-2	0.725	4,046	2,933	586	425	1,192	864.20	0.48	737	355.86	1	7,484	7,484	1,686	1,686
G-1	0.725	3,270	2,371	494	358	1,192	864.20	0.48	737	355.86	1	1,727	1,727	1,267	1,267
G-2	0.725	3,270	2,371	494	358	1,192	864.20	0.48	737	355.86	1	7,484	7,484	1,686	1,686
G-3	0.725	3,270	2,371	494	358	1,192	864.20	0.48	737	355.86	1	26,966	26,966	4,606	4,606
H-1	0.725	3,270	2,371	494	358	1,192	864.20	0.48	737	355.86	1	1,727	1,727	1,267	1,267
H-2	0.725	3,270	2,371	494	358	1,192	864.20	0.48	737	355.86	1	7,484	7,484	1,686	1,686
H-3	0.725	3,270	2,371	494	358	1,192	864.20	0.48	737	355.86	1	26,966	26,966	4,606	4,606
I-1	0.725	4,563	3,308	647	469	1,192	864.20	0.48	737	355.86	1	1,727	1,727	1,267	1,267
I-2	0.725	4,563	3,308	647	469	1,192	864.20	0.48	737	355.86	1	7,484	7,484	1,686	1,686
I-3	0.725	4,563	3,308	647	469	1,192	864.20	0.48	737	355.86	1	26,966	26,966	4,606	4,606
I-4	0.725	4,563	3,308	647	469	1,192	864.20	0.48	737	355.86	1	126,103	126,103	2,994	2,994
J-1	0.725	4,563	3,308	647	469	1,192	864.20	0.48	737	355.86	1	1,727	1,727	1,267	1,267
J-2	0.725	4,563	3,308	647	469	1,192	864.20	0.48	737	355.86	1	7,484	7,484	1,686	1,686
J-3	0.725	4,563	3,308	647	469	1,192	864.20	0.48	737	355.86	1	26,966	26,966	4,606	4,606
J-4	0.725	4,563	3,308	647	469	1,192	864.20	0.48	737	355.86	1	126,103	126,103	2,994	2,994

Appendix I: Average Capital and O/M Costs of Wells under the Ban with Wavier Options (1b, 2b, and 3b)

Waste Type/ BMP	Get Waiver			Close Well								
					Initial Injectate Samp		Pre-clos. Notification		Close Well		Initial Soil Samp	
	Fraction wavier	Unit Capital $	Total Capital $	Fraction well closure	Unit Capital $	Total Capital $	Unit Capital $	Total Capital $	Unit Capital $	Total Capital $	Unit Capital $	Total Capital $
A-1	0.725	1,300	943	0.275	494	136	41	11.19	1,564	430	3,871	1,065
A-2	0.725	1,300	943	0.275	494	136	41	11.19	1,564	430	3,871	1,065
A-3	0.725	1,300	943	0.275	494	136	41	11.19	3,751	1,032	3,871	1,065
B-1	0.725	1,300	943	0.275	494	136	41	11.19	1,564	430	3,871	1,065
B-2	0.725	1,300	943	0.275	494	136	41	11.19	1,564	430	3,871	1,065
B-3	0.725	1,300	943	0.275	494	136	41	11.19	3,751	1,032	3,871	1,065
C-1	0.725	1,300	943	0.275	647	178	41	11.19	1,564	430	3,871	1,065
C-2	0.725	1,300	943	0.275	647	178	41	11.19	1,564	430	3,871	1,065
C-3	0.725	1,300	943	0.275	647	178	41	11.19	3,751	1,032	3,871	1,065
C-4	0.725	1,300	943	0.275	647	178	41	11.19	3,751	1,032	3,871	1,065
D-1	0.725	1,300	943	0.275	647	178	41	11.19	1,564	430	3,871	1,065
D-2	0.725	1,300	943	0.275	647	178	41	11.19	1,564	430	3,871	1,065
D-3	0.725	1,300	943	0.275	647	178	41	11.19	3,751	1,032	3,871	1,065
D-4	0.725	1,300	943	0.275	647	178	41	11.19	3,751	1,032	3,871	1,065
E1-2	0.725	1,300	943	0.275	586	161	41	11.19	1,564	430	3,871	1,065
E2-2	0.725	1,300	943	0.275	586	161	41	11.19	1,564	430	3,871	1,065
F1-2	0.725	1,300	943	0.275	586	161	41	11.19	1,564	430	3,871	1,065
F2-2	0.725	1,300	943	0.275	586	161	41	11.19	1,564	430	3,871	1,065
G-1	0.725	1,300	943	0.275	494	136	41	11.19	1,564	430	3,871	1,065
G-2	0.725	1,300	943	0.275	494	136	41	11.19	1,564	430	3,871	1,065
G-3	0.725	1,300	943	0.275	494	136	41	11.19	3,751	1,032	3,871	1,065
H-1	0.725	1,300	943	0.275	494	136	41	11.19	1,564	430	3,871	1,065
H-2	0.725	1,300	943	0.275	494	136	41	11.19	1,564	430	3,871	1,065
H-3	0.725	1,300	943	0.275	494	136	41	11.19	3,751	1,032	3,871	1,065
I-1	0.725	1,300	943	0.275	647	178	41	11.19	1,564	430	3,871	1,065
I-2	0.725	1,300	943	0.275	647	178	41	11.19	1,564	430	3,871	1,065
I-3	0.725	1,300	943	0.275	647	178	41	11.19	3,751	1,032	3,871	1,065
I-4	0.725	1,300	943	0.275	647	178	41	11.19	3,751	1,032	3,871	1,065
J-1	0.725	1,300	943	0.275	647	178	41	11.19	1,564	430	3,871	1,065
J-2	0.725	1,300	943	0.275	647	178	41	11.19	1,564	430	3,871	1,065
J-3	0.725	1,300	943	0.275	647	178	41	11.19	3,751	1,032	3,871	1,065
J-4	0.725	1,300	943	0.275	647	178	41	11.19	3,751	1,032	3,871	1,065

Appendix I: Average Capital and O/M Costs of Wells under the Ban with Wavier Options (1b, 2b, and 3b)

Waste Type/ BMR	Send Waste Off-site														
	POTW					Waste Exchange					Wastewater Treatment Facility				
	Fraction	Unit Capital $	Total Capital $	Unit O&M $/yr	Total O&M $/yr	Fraction	Unit Capital $	Total Capital $	Unit O&M $/yr	Total O&M $/yr	Fraction	Unit Capital $	Total Capital $	Unit O&M $/yr	Total O&M $/yr
A-1	0.1375	2,449	337	1,462	201		-	-	-	-	0.1375	2,210	304	2,068	284
A-2	0.1375	2,449	337	1,462	201		-	-	-	-	0.1375	2,210	304	2,068	284
A-3	0.1375	2,449	337	1,462	201		-	-	-	-	0.1375	2,210	304	2,068	284
B-1	0.0688	2,449	168	1,462	101	0.1375	4,061	558	789	108	0.0688	1,865	128	6,304	433
B-2	0.0688	2,449	168	1,462	101	0.1375	4,061	558	789	108	0.0688	1,865	128	6,304	433
B-3	0.0688	2,449	168	1,462	101	0.1375	4,061	558	789	108	0.0688	1,865	128	6,304	433
C-1	0.1375	2,805	386	783	108		-	-	-	-	0.1375	2,210	304	2,068	284
C-2	0.1375	2,805	386	783	108		-	-	-	-	0.1375	2,210	304	2,068	284
C-3	0.1375	2,805	386	783	108		-	-	-	-	0.1375	2,210	304	2,068	284
C-4	0.1375	2,805	386	783	108		-	-	-	-	0.1375	2,210	304	2,068	284
D-1		-	-	-	-	0.1375	4,417	607	1,449	199	0.1375	1,865	256	6,304	867
D-2		-	-	-	-	0.1375	4,417	607	1,449	199	0.1375	1,865	256	6,304	867
D-3		-	-	-	-	0.1375	4,417	607	1,449	199	0.1375	1,865	256	6,304	867
D-4		-	-	-	-	0.1375	4,417	607	1,449	199	0.1375	1,865	256	6,304	867
E1-2	0.1375	2,504	344	783	108		-	-	-	-	0.1375	2,210	304	2,409	331
E2-2	0.0688	2,648	182	1,174	81	0.1375	4,951	681	1,237	170	0.0688	2,210	152	6,766	465
F1-2	0.1375	6,074	835	1,580	217		-	-	-	-	0.1375	5,780	795	16,728	2,300
F2-2	0.0688	6,218	427	1,971	136	0.1375	8,521	1,172	2,031	279	0.0688	5,780	397	25,666	1,765
G-1	0.1375	6,019	828	735	101		-	-	-	-	0.1375	5,780	795	8,919	1,226
G-2	0.1375	6,019	828	735	101		-	-	-	-	0.1375	5,780	795	8,919	1,226
G-3	0.1375	6,019	828	735	101		-	-	-	-	0.1375	5,780	795	8,919	1,226
H-1	0.0688	6,019	414	735	51	0.1375	6,842	941	730	100	0.0688	3,264	224	15,586	1,072
H-2	0.0688	6,019	414	735	51	0.1375	6,842	941	730	100	0.0688	3,264	224	15,586	1,072
H-3	0.0688	6,019	414	735	51	0.1375	6,842	941	730	100	0.0688	3,264	224	15,586	1,072
I-1	0.1375	6,375	877	791	109		-	-	-	-	0.1375	5,780	795	8,919	1,226
I-2	0.1375	6,375	877	791	109		-	-	-	-	0.1375	5,780	795	8,919	1,226
I-3	0.1375	6,375	877	791	109		-	-	-	-	0.1375	5,780	795	8,919	1,226
I-4	0.1375	6,375	877	791	109		-	-	-	-	0.1375	5,780	795	8,919	1,226
J-1		-	-	-	-	0.1375	10,059	1,383	9,087	1,249	0.1375	3,264	449	15,586	2,143
J-2		-	-	-	-	0.1375	10,059	1,383	9,087	1,249	0.1375	3,264	449	15,586	2,143
J-3		-	-	-	-	0.1375	10,059	1,383	9,087	1,249	0.1375	3,264	449	15,586	2,143
J-4		-	-	-	-	0.1375	10,059	1,383	9,087	1,249	0.1375	3,264	449	15,586	2,143

Appendix I: Average Capital and O/M Costs of Wells under the Ban with Wavier Options (1b, 2b, and 3b)

Waste Type/ BMP	Soil Remediation Costs											
	re-Sampling			off-site soil disposal/ thermal treat.			off-site soil disposal/ NH landfill			on-site soil disposal/ NH thermal treat.		
	Fraction 35%(closure)	Unit Capital $	Total Capital $	Fraction 1/3 remed	Unit capital $	Total Capital $	Fraction 1/3 remed	Unit capital $	Total Capital $	Fraction 1/3 remed	Unit capital $	Total Capital $
A-1	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
A-2	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
A-3	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
B-1	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
B-2	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
B-3	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
C-1	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
C-2	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
C-3	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
C-4	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
D-1	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
D-2	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
D-3	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
D-4	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
E1-2	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
E2-2	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
F1-2	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
F2-2	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
G-1	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
G-2	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
G-3	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
H-1	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
H-2	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
H-3	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
I-1	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
I-2	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
I-3	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
I-4	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
J-1	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
J-2	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
J-3	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156
J-4	0.09625	3,871	373	0.03	24,248	779	0.03	3,752	120	0.03	4,872	156

Appendix I: Average Capital and O/M Costs of Wells under the Ban with Wavier Options (1b, 2b, and 3b)

Waste Type/ BMP	Other Administrative Costs			Total Costs		
	Fraction (100%)	Unit capital ($)	Total capital ($)	Annualized capital ($)	O&M ($)	Total Annual Cost ($)
A-1	1	164	164	829	3,014	3,843
A-2	1	164	164	1,344	3,439	4,783
A-3	1	164	164	3,139	6,398	9,537
B-1	1	164	164	848	3,174	4,022
B-2	1	164	164	1,363	3,598	4,961
B-3	1	164	164	3,158	6,557	9,716
C-1	1	164	164	921	3,033	3,953
C-2	1	164	164	1,435	3,457	4,893
C-3	1	164	164	3,231	6,416	9,647
C-4	1	164	164	12,094	4,783	16,877
D-1	1	164	164	936	3,716	4,652
D-2	1	164	164	1,451	4,140	5,591
D-3	1	164	164	3,247	7,100	10,346
D-4	1	164	164	12,110	5,466	17,576
E1-2	1	164	164	1,397	3,460	4,856
E2-2	1	164	164	1,430	3,740	5,170
F1-2	1	164	164	1,485	5,566	7,051
F2-2	1	164	164	1,517	5,223	6,741
G-1	1	164	164	917	3,868	4,784
G-2	1	164	164	1,431	4,292	5,724
G-3	1	164	164	3,227	7,252	10,478
H-1	1	164	164	913	3,761	4,674
H-2	1	164	164	1,427	4,186	5,613
H-3	1	164	164	3,223	7,145	10,368
I-1	1	164	164	1,009	3,988	4,997
I-2	1	164	164	1,523	4,413	5,936
I-3	1	164	164	3,319	7,372	10,691
I-4	1	164	164	12,182	5,739	17,921
J-1	1	164	164	1,023	6,073	7,096
J-2	1	164	164	1,538	6,498	8,036
J-3	1	164	164	3,333	9,457	12,790
J-4	1	164	164	12,196	7,824	20,020

Appendix J
Unit Costs Associated with Large-Capacity Cesspool Closures

	Capital	O & M
Analysis	$ 607	$1,921
Install Holding Tank	$5,412	$ 0
Liquid Transportation	$ 0	$ 981
POTW Disposal	$ 0	$ 19
Well closure	$1,293	$ 0
Pre-closure notification	$ 41	$ 0
Other Administrative Costs	$ 79	$ 0
Total	$7,532	$2,922

Total Annualized cost $3,626

Appendix K

Estimating Per Facility Sales for Facilities in Each Affected SIC Category

For each SIC code containing affected facilities, the analysis obtained U.S. Census data on the average total sales (or revenue) for establishments in various revenue categories.[1] Based on the average sales data, the analysis then modeled the distribution of sales across each industry assuming a standard lognormal distribution (i.e., the natural log of sales is used to transform the lognormal distribution into a normal distribution). This assumption was deemed reasonable based on a review of data plots for the Census data describing each of the 18 SIC categories.

The mean (μ) of the natural log average revenue was calculated using the following formula:

$$\mu = \frac{\sum_i^n \ln(x_i)(establishments_i)}{n}$$

where: n = the number of groups in the data
x_i = the average revenues per establishment for each group i
$establishments_i$ = the number of establishments in each group i

The standard deviation (σ) of the natural log of average revenue was calculated using the following formula:

$$\sigma = \sqrt{\frac{\sum_i^n (\ln(x_i) - \mu)^2 (establishments_i)}{n-1}}$$

These formulas take into account that the Bureau of Census data is grouped by different revenue size categories. Specific calculations used to determine the natural log mean sales and the standard deviation for specific SIC categories are presented in Appendices M and N.

[1] 1992 Establishment and Firm Size Economic Census data for Manufacturing, Retail, Wholesale, Construction, and Service Industries. Bureau of Census, 1992. Data have been updated to 1999 dollars using the implicit price deflator for the gross domestic product.

The natural log of the mean sales and the standard deviation for each SIC category, along with the SIC's applicable "break-even points"[2] and their natural logs, are used to estimate the percentage of facilities significantly affected in the given industry.[3] The number of facilities with costs greater than the break-even point is then equal to the percent of facilities affected times the total number of affected facilities.

[2] The break-even point is a function of the average facility cost and the applicable threshold for significant impacts. For example, if the average per facility cost of compliance in a given SIC category is $5,150 then the break-even point assuming a one percent threshold is $515,000 (i.e., $5,150/0.01).

[3] The NORMDIST function in Excel is used to calculate the percent of facilities with sales lower than the break-even point. The NORMDIST function calculates the normal cumulative distribution given a value in the distribution, the mean, and standard deviation.

Appendix L

SBA Size Thresholds for Affected Facilities

SIC Code	Industry	SBA Size Threshold[1]
4142	Bus Charter Service, Except Local	$5.0
4212	Local Trucking without Storage	$6.0
4213	Trucking, Except Local	$18.5
4581	Airports, Flying Fields, & Terminal Services	$5.0
5015	Motor Vehicle Parts, Used	100
5511	Motor Vehicle Dealers (New and Used)	$21.0
5521	Motor Vehicle Dealers (Used Only)	$17.0
5531	Auto & Home Supply Stores	$5.0
5541	Gasoline Service Stations	$6.5
7514	Passenger Car Rental	$18.5
7515	Passenger Car Leasing	$18.5
7532	Top, Body, and Upholstery Repair Shops and Paint Shops	$5.0
7533	Automotive Exhaust System Repair Shop	$5.0
7537	Automotive Transmission Repair Shops	$5.0
7538	General Automotive Repair Shops	$5.0
7539	Automotive Repair Shops, NEC	$5.0
7549	Automotive Services, Except Repair and Carwashes	$5.0
9111[2]	Municipal & Township Solid Waste Management & Road Facilities	50,000

[1] SBA size thresholds from 13 CFR, 121. Size standards in number of employees or millions of dollars.

[2] Economic Census refers to 9111 as "Executive Offices." In fact, the facilities described in the Region 3 database of Class V wells under SIC 9111 correspond more closely with Municipal and Township Solid Waste Management and Road facilities as described in the 1992 Census of Governments. Thus, all 9111 codes in this analysis refer to these facilities rather than the broader definition of the Standard Industrial Classification Manual.

Appendix M: Data and Calculations for SIC Codes in the Utilities Sector

Revenue Size of Establishments

SIC CODE	< $249,999	$250,000 to $499,999	$500,000 to $999,999	$1,000,000 to $2,499,999	$2,500,000 to $4,999,999	$5,000,000 to $9,999,999	$10,000,000 to $24,999,999	$25,000,000 to $49,999,999	$50,000,000 to $99,999,999	$100,000,000 to $249,999,999	>$250,000,000	
5016												
A. # of Est.	2754	1508	1155	678	119	54						mean ln(revenue per establishment)
B. Total Revenue	$354,099,000	$537,370,000	$799,470,000	$998,526,000	$405,627,000	$266,108,000						12.80
C. Inflated Rev	$400,379,739	$607,604,259	$903,960,729	$1,129,033,348	$458,642,449	$300,888,316						
D. rev/est	$145,381	$402,921	$782,650	$1,665,241	$3,854,138	$5,572,006						mean revenue from log
E. ln(rev/est)	11.89	12.91	13.57	14.33	15.16	15.53						568,220
F. ln(rev/est) x est	32,737	19,463	15,674	9,713	1,805	839						
G. (ln(rev/est)-mu)^2	0.83	0.01	0.59	2.33	5.59	7.47						standard deviation of log revenue per establishment
A*G	2,295	17	686	1,576	665	403						0.95
6511												
A. # of Est.	402	336	451	1836	3031	4957	6650	2504	704	153	33	
B. Total Revenue	$49,842,000	$124,453,000	$331,844,000	$3,192,069,000	$11,388,264,000	$36,208,152,000	$106,255,399,000	$85,091,085,000	$46,949,959,000	$22,149,230,000	$15,690,574,000	mean ln(revenue per establishment)
C. Inflated Rev	$56,356,349	$140,719,007	$375,216,011	$3,609,272,418	$12,876,710,105	$40,940,557,466	$120,142,979,649	$96,212,489,810	$53,086,318,641	$25,044,134,361	$17,741,332,022	16.06
D. rev/est	$140,190	$418,607	$831,965	$1,965,835	$4,248,337	$8,259,140	$18,066,613	$38,423,516	$75,406,703	$163,887,153	$537,616,122	
E. ln(rev/est)	11.85	12.95	13.63	14.49	15.26	15.93	16.71	17.46	18.14	18.91	20.10	
F. ln(rev/est) x est	4,764	4,350	6,148	26,606	46,259	78,949	111,119	43,730	12,769	2,894	663	mean revenue from log
G. (ln(rev/est)-mu)^2	17.69	9.69	5.86	2.45	0.63	0.02	0.43	1.98	4.33	6.16	16.37	20,213,518
A*G	7,113	3,254	2,654	4,502	1,917	84	2,829	4,956	3,049	1,248	540	
			SBA Threshold	21,000,000	SBA Threshold/Significance	21,000,000	Percent Small Business:	74.2%				standard deviation of log revenue per establishment
			Signigicance test	100%	ln	16.86						1.24
6521												
A. # of Est.	3809	3547	3791	3031	797	236	59	12				mean ln(revenue per establishment)
B. Total Revenue	$524,262,000	$1,301,989,000	$2,895,434,000	$4,632,679,000	$2,710,857,000	$1,565,833,000	$881,394,000	$420,293,000				13.32
C. Inflated Rev	$592,783,043	$1,472,158,962	$3,047,727,224	$5,238,170,145	$3,064,939,870	$1,770,487,373	$996,592,196	$475,225,295				
D. rev/est	$155,627	$415,043	$803,938	$1,728,199	$3,845,596	$7,502,065	$16,891,393	$39,602,108				mean revenue from log
E. ln(rev/est)	11.96	12.94	13.60	14.36	15.16	15.83	16.64	17.49				1,034,266
F. ln(rev/est) x est	45,537	45,884	51,547	43,533	12,084	3,736	982	210				
G. (ln(rev/est)-mu)^2	1.86	0.15	0.08	1.09	3.40	6.32	11.06	17.45				standard deviation of log revenue per establishment
A*G	7,066	515	297	3,312	2,714	1,491	652	209				1.03
			SBA Threshold	17,000,000	SBA Threshold/Significance	17,000,000	Percent Small Business	99.9%				
			Signigicance test	100%	ln	16.65						
6531												
A. # of Est.	6796	7345	6367	3007	510	171	79	20	6	10	13	mean ln(revenue per establishment)
B. Total Revenue	$1,011,262,000	$2,658,916,000	$4,432,960,000	$4,337,135,000	$1,733,937,000	$1,181,710,000	$1,170,946,000	$647,281,000	$567,004,000	$1,606,043,000	$8,509,964,000	13.10
C. Inflated Rev	$1,143,433,943	$3,006,436,321	$5,012,347,872	$4,903,998,545	$1,960,562,566	$1,336,159,497	$1,323,988,842	$731,858,013	$641,111,423	$1,815,952,820	$9,622,216,295	
D. rev/est	$168,251	$409,317	$787,239	$1,630,861	$3,844,240	$7,813,798	$16,759,350	$36,592,901	$80,138,928	$181,595,282	$740,170,484	mean revenue from log
E. ln(rev/est)	12.03	12.92	13.58	14.30	15.16	15.87	16.63	17.42	18.20	19.02	20.42	738,483
F. ln(rev/est) x est	81,778	94,914	68,440	43,014	7,733	2,714	1,314	348	146	190	265	
G. (ln(rev/est)-mu)^2	1.15	0.03	0.22	1.44	4.24	7.66	12.47	18.59	25.96	34.97	53.56	standard deviation of log revenue per establishment
A*G	7,788	242	1,422	4,337	2,161	1,310	985	372	208	350	696	0.90
			SBA Threshold	5,000,000	SBA Threshold/Significance	5,000,000	Percent Small Business	99.5%				
			Signigicance test	100%	ln	15.42						
6541												
A. # of Est.	8253	9358	11942	17286	5006	1443	650	160	83	39	42	mean ln(revenue per establishment)
B. Total Revenue	$1,184,947,000	$3,443,224,000	$8,683,722,000	$27,262,533,000	$16,794,841,000	$9,785,797,000	$9,810,951,000	$6,140,918,000	$5,715,156,000	$5,377,447,000	$36,542,673,000	13.76
C. Inflated Rev	$1,339,819,573	$3,893,253,377	$9,818,684,465	$30,825,746,063	$18,989,926,719	$11,064,800,668	$11,093,242,296	$6,943,535,983	$6,462,126,889	$6,080,279,323	$41,318,800,361	

Appendix M: Data and Calculations for SIC Codes in the Utilities Sector

4142

SIC CODE	<$100,000	$100,000 to $249,999	$250,000 to $499,999	$500,000 to $999,999	$1,000,000 to $2,499,999	$2,500,000 to $4,999,999	$5,000,000 to $9,999,999	$10,000,000 to $24,999,999	$25,000,000 to $49,999,999	$50,000,000 to $99,999,999	$100,000,000 to $249,999,999	$250,000,000 to $499,999,999	>$500,000,000
A. # of Est	65	138	135	131	146	60	33						
B. Total Revenue	$ 3,489,000	$ 23,320,000	$ 49,528,000	$ 94,509,000	$ 235,832,000	$ 200,811,000	$ 265,371,000						
C. Inflated Reve	$ 3,945,012	$ 26,367,924	$ 56,001,310	$ 106,861,326	$ 266,655,242	$ 233,841,198	$ 300,054,990						
D. rev/est	$ 53,677	$ 188,986	$ 366,674	$ 721,443	$ 1,815,288	$ 3,446,850	$ 8,041,545						
E. ln(rev/est)	10.89	12.04	12.81	13.49	14.30	15.05	15.90						
F. ln(rev/est) x est	708	1661	1730	1767	2087	903	525						
G. (ln(rev/est)-mu)^2	5.56	1.47	0.19	0.06	1.09	3.25	7.02						
A*G	362	203	26	7	160	195	232						

SBA Threshold 5,000,000 — SBA Threshold/ Significance ln 5,000,000 — Percent Small Business 95.4%

Signigicance test 100% — 15.42

mean ln(revenue per establishment) 13.25

mean revenue from log 1,312,220

standard deviation of log revenue per establishment 1.29

4212

A. # of Est.	8708	12262	7722	5260	3799	1255	515	206	55
B. Total Revenue	$ 544,522,000	$ 1,992,959,000	$ 2,710,688,000	$ 3,683,359,000	$ 5,813,412,000	$ 4,280,413,000	$ 3,528,003,000	$ 2,907,727,000	$ 8,702,036,000
C. Inflated Reve	$ 615,691,025	$ 2,253,438,741	$ 3,064,974,922	$ 4,164,774,021	$ 6,573,224,948	$ 4,839,662,979	$ 3,989,112,992	$ 3,287,766,919	$ 7,577,992,105
D. rev/est	$ 70,704	$ 183,774	$ 396,915	$ 791,782	$ 1,730,251	$ 3,856,465	$ 7,730,839	$ 15,960,034	$ 137,781,675
E. ln(rev/est)	11.17	12.12	12.89	13.58	14.36	15.17	15.86	16.59	18.74
F. ln(rev/est) x est	97236	148633	99546	71442	54568	19032	8164	3417	1031
G. (ln(rev/est)-mu)^2	2.19	0.28	0.06	0.88	2.95	6.35	10.34	15.52	37.15
A*G	19064	3372	466	4610	11212	7966	5333	3197	2043

SBA Threshold 18,500,000 — SBA Threshold/ Significance ln 18,500,000 — Percent Small Business 100.0%

Signigicance test 100% — 16.73

mean ln(revenue per establishment) 12.65

mean revenue from log 637,673

standard deviation of log revenue per establishment 1.20

4213

A. # of Est.	3575	6316	4469	3895	3897	2025	1116	620	188	90	48	8	17
B. Total Revenue	$ 237,152,000	$ 1,033,923,000	$ 1,804,916,000	$ 2,756,926,000	$ 6,201,787,000	$ 7,068,352,000	$ 7,697,521,000	$ 9,435,548,000	$ 6,392,089,000	$ 6,183,201,000	$ 7,768,381,000	$ 2,559,268,000	$18,004,864,000
C. Inflated Rev	$ 268,147,766	$ 1,169,058,736	$ 1,614,678,521	$ 3,117,256,228	$ 7,012,360,561	$ 7,993,318,308	$ 8,703,586,995	$10,668,774,124	$ 7,227,535,032	$ 6,991,345,371	$ 8,783,708,397	$ 2,893,764,328	$20,358,099,725
D. rev/est	$ 75,006	$ 185,094	$ 404,250	$ 800,323	$ 1,799,425	$ 3,947,317	$ 7,798,913	$ 17,207,700	$ 38,444,335	$ 77,681,615	$ 182,993,925	$ 361,720,541	$ 1,197,535,278
E. ln(rev/est)	11.23	12.13	12.91	13.59	14.40	15.19	15.87	16.66	17.46	18.17	19.02	19.71	20.90
F. ln(rev/est) x est	40131	76604	57952	52944	56128	30757	17710	10330	3283	1635	913	158	355
G. (ln(rev/est)-mu)^2	4.18	1.30	0.13	0.10	1.29	3.88	8.76	11.50	17.60	24.00	33.13	41.44	58.28
A*G	14936	8218	580	407	5008	7459	7545	7132	3309	2160	1590	331	991

SBA Threshold 18,500,000 — SBA Threshold/ Significance ln 18,500,000 — Percent Small Business 99.0%

Signigicance test 100% — 16.73

mean ln(revenue per establishment) 13.27

mean revenue from log 1,769,662

standard deviation of log revenue per establishment 1.49

Appendix M: Data and Calculations for SIC Codes in the Utilities Sector

SIC CODE	Revenue Size of Establishments										
	< $249,999	$250,000 to $499,999	$500,000 to $999,999	$1,000,000 to $2,499,999	$2,500,000 to $4,999,999	$5,000,000 to $9,999,999	$10,000,000 to $24,999,999	$25,000,000 to $49,999,999	$50,000,000 to $99,999,999	$100,000,000 to $249,999,999	>$250,000,000
D. rev/est	$162,343	$416,035	$822,198	$1,783,278	$3,793,433	$7,667,915	$17,066,527	$38,575,200	$77,856,950	$155,904,598	$983,780,961
E. ln(rev/est)	12.00	12.94	13.62	14.39	15.15	15.85	16.65	17.47	18.17	18.86	20.71
F. ln(rev/est) x est	99,015	121,079	162,647	248,814	75,835	22,875	10,824	3,144	1,508	736	870
G. (ln(rev/est)-mu)^2	3.12	0.68	0.02	0.40	1.92	4.37	8.35	13.73	19.43	26.03	48.23
A*G	25,710	6,353	243	6,693	9,621	6,304	5,429	2,472	1,613	1,015	2,025

mean revenue from log: 1,769,803

standard deviation of log revenue per establishment: 1.12

SBA Threshold: 6,500,000
Significance test: 100%

SBA Threshold/Significance in: 6,500,000
15.69

Percent Small Business: 94.9%

* Note: We took a conservative approach for SIC 5015 and assumed that the percentage of entities that were small businesses is one hundred percent, because, according to SBA guidelines, the number of small businesses for SIC 5015 is determined by number of employees and employee data was not available.

Appendix M: Data and Calculations for SIC Codes in the Utilities Sector

Revenue Size of Firms

SIC CODE	<$100,000	$100,000 to $249,999	$250,000 to $499,999	$500,000 to $999,999	$1,000,000 to $2,499,999	$2,500,000 to $4,999,999	$5,000,000 to $9,999,999	$10,000,000 to $24,999,999	$25,000,000 to $49,999,999	$50,000,000 to $99,999,999	> $100,000,000
7514											
A. # of Est.	379	455	382	358	244	105	64	36	13	15	
B. Total Revenue	$21,578,000	$75,311,000	$135,551,000	$242,716,000	$378,716,000	$379,127,000	$379,464,000	$531,364,000	$433,027,000	$7,619,167,000	
C. Inflated Rev	$24,398,245	$85,154,148	$153,267,516	$274,438,981	$428,214,181	$428,678,899	$429,059,945	$600,813,275	$489,623,629	$8,615,014,741	
D. rev/est	$64,375	$187,152	$401,224	$766,569	$1,754,976	$4,082,656	$7,945,555	$16,689,258	$37,663,356	$574,334,316	
E. ln(rev/est)	11.07	12.14	12.90	13.55	14.38	15.22	15.89	16.63	17.44	20.17	
F. ln(rev/est) x est	4,196	5,524	4,929	4,851	3,508	1,598	858	599	227	303	
G. (ln(rev/est)-mu)^2	3.83	0.79	0.02	0.27	1.82	4.81	6.18	12.97	19.49	50.98	
A*G	1,451	360	6	97	444	505	441	467	253	765	

mean ln(revenue per establishment) 13.03

mean revenue from log 1,472,929

standard deviation of log revenue per establishment 1.63

SBA Threshold 18,500,000 — SBA Threshold/ Significance 18,500,000 — Percent Small Business 99.2%

Significance test 100% — ln 16.73

7515								
A. # of Est.	108	125	118	125	144	58	43	30
B. Total Revenue	$5,557,000	$20,502,000	$43,768,000	$86,838,000	$225,114,000	$201,343,000	$278,967,000	$1,623,086,000
C. Inflated Rev	$6,283,300	$23,181,611	$49,488,478	$98,187,727	$254,536,400	$227,658,530	$315,427,987	$1,835,223,340
D. rev/est	$58,179	$185,453	$419,394	$785,502	$1,767,614	$3,925,147	$7,335,535	$61,174,111
E. ln(rev/est)	10.97	12.13	12.95	13.57	14.39	15.18	15.81	17.93
F. ln(rev/est) x est	1,185	1,516	1,526	1,697	2,071	881	680	538
G. (ln(rev/est)-mu)^2	6.11	1.72	0.25	0.02	0.89	3.03	5.60	20.13
A*G	660	215	29	2	128	176	241	604

mean ln(revenue per establishment) 13.44

mean revenue from log 2,708,699

standard deviation of log revenue per establishment 1.65

SBA Threshold 18,500,000 — SBA Threshold/ Significance 18,500,000 — Percent Small Business 97.7%

Significance test 100% — ln 16.73

7532								
A. # of Est.	4910	10705	7401	4573	1834	207	45	11
B. Total Revenue	$318,435,000	$1,783,226,000	$2,602,737,000	$3,138,506,000	$2,573,158,000	$666,767,000	$300,870,000	$341,790,000
C. Inflated Rev	$360,054,455	$2,016,293,638	$2,942,914,726	$3,548,708,734	$2,909,469,751	$753,913,447	$340,193,709	$386,461,953
D. rev/est	$73,331	$188,351	$397,637	$776,013	$1,586,407	$3,642,094	$7,559,860	$35,132,905
E. ln(rev/est)	11.20	12.15	12.89	13.56	14.28	15.11	15.84	17.37
F. ln(rev/est) x est	55,005	130,024	95,423	62,019	26,184	3,127	713	191
G. (ln(rev/est)-mu)^2	1.83	0.17	0.11	1.02	2.97	6.52	10.79	23.24
A*G	8,969	1,784	851	4,643	5,443	1,350	485	256

mean ln(revenue per establishment) 12.55

mean revenue from log 422,870

standard deviation of log revenue per establishment 0.90

SBA Threshold 5,000,000 — SBA Threshold/ Significance 5,000,000 — Percent Small Business 99.9%

Significance test 100% — ln 15.42

7533								
A. # of Est.	385	1206	1159	600	194	52	15	4
B. Total Revenue	$26,491,000	$204,751,000	$414,266,000	$400,708,000	$272,421,000	$160,586,000	$119,259,000	$288,339,000
C. Inflated Rev	$29,953,374	$231,511,956	$468,410,566	$453,080,536	$308,026,425	$204,188,590	$134,846,151	$326,024,907
D. rev/est	$77,801	$191,967	$404,151	$755,134	$1,587,765	$3,926,704	$8,989,743	$81,506,227
E. ln(rev/est)	11.26	12.17	12.91	13.53	14.28	15.18	16.01	18.22
F. ln(rev/est) x est	4,336	14,671	14,962	8,121	2,770	790	240	73
G. (ln(rev/est)-mu)^2	2.11	0.30	0.04	0.67	2.44	6.10	10.87	30.27
A*G	812	364	44	404	474	317	163	121

mean ln(revenue per establishment) 12.71

mean revenue from log 483,010

standard deviation of log revenue per establishment 0.86

SBA Threshold 5,000,000 — SBA Threshold/ Significance 5,000,000 — Percent Small Business 99.9%

Significance test 100% — ln 15.42

7537

Appendix M: Data and Calculations for SIC Codes in the Utilities Sector

Revenue Size of Firms

SIC CODE	<$100,000	$100,000 to $249,999	$250,000 to $499,999	$500,000 to $999,999	$1,000,000 to $2,499,999	$2,500,000 to $4,999,999	$5,000,000 to $9,999,999	$10,000,000 to $24,999,999	$25,000,000 to $49,999,999	$50,000,000 to $99,999,999	> $100,000,000
A. # of Est.	721	2240	1693	530	115	15					
B. Total Revenue	$50,924,000	$375,871,000	$586,822,000	$347,076,000	$162,766,000	$59,173,000					
C. Inflated Rev	$57,579,767	$424,997,340	$663,519,635	$392,438,833	$184,039,516	$66,906,911					
D. rev/est	$79,861	$189,731	$391,919	$740,451	$1,600,344	$4,460,461					
E. ln(rev/est)	11.29	12.15	12.88	13.52	14.29	15.31					
F. ln(rev/est) x est	8,139	27,224	21,804	7,163	1,643	230					
G. (ln(rev/est)-mu)^2	1.37	0.09	0.16	1.12	3.34	8.14					
A*G	987	208	300	592	384	122					

SBA Threshold 5,000,000 SBA Threshold/ Significance 5,000,000 Percent Small Business 100.0%
Signigicance test 100% ln 15.42

mean ln(revenue per establishment) 12.46
mean revenue from log 328,393
standard deviation of log revenue per establishment 0.70

7538

A. # of Est.	9773	22989	13873	5501	1562	202	43	27	4
B. Total Revenue	$644,927,000	$3,827,820,000	$4,799,070,000	$3,688,216,000	$2,211,898,000	$679,362,000	$287,213,000	$395,022,000	$230,074,000
C. Inflated Rev	$729,218,959	$4,328,116,074	$5,426,308,449	$4,170,265,831	$2,500,993,069	$768,154,613	$324,751,739	$446,651,375	$260,144,672
D. rev/est	$74,616	$188,269	$391,142	$758,092	$1,601,148	$3,802,746	$7,552,366	$16,542,644	$65,036,168
E. ln(rev/est)	11.22	12.15	12.88	13.54	14.29	15.15	15.84	16.62	17.99
F. ln(rev/est) x est	109,654	279,216	178,640	74,476	22,315	3,061	681	449	72
G. (ln(rev/est)-mu)^2	1.36	0.06	0.24	1.33	3.61	7.64	11.91	17.93	31.40
A*G	13,302	1,337	3,332	7,298	5,636	1,544	512	484	126

SBA Threshold 5,000,000 SBA Threshold/ Significance 5,000,000 Percent Small Business 100.0%
Signigicance test 100% ln 15.42

mean ln(revenue per establishment) 12.39
mean revenue from log 327,010
standard deviation of log revenue per establishment 0.79

7539

A. # of Est.	1661	3492	2102	776	342	50	17	4
B. Total Revenue	$109,615,000	$578,702,000	$724,524,000	$525,378,000	$493,179,000	$165,844,000	$118,131,000	$90,534,000
C. Inflated Rev	$123,941,681	$654,338,351	$819,219,287	$594,044,905	$557,637,495	$187,519,811	$131,309,322	$102,366,794
D. rev/est	$74,619	$187,382	$389,733	$765,522	$1,630,519	$3,750,396	$7,724,078	$25,591,698
E. ln(rev/est)	11.22	12.14	12.87	13.55	14.30	15.14	15.86	17.06
F. ln(rev/est) x est	18,637	42,396	27,060	10,513	4,892	757	270	68
G. (ln(rev/est)-mu)^2	1.36	0.06	0.24	1.35	3.68	7.57	12.06	21.82
A*G	2,260	211	498	1,047	1,258	378	205	87

SBA Threshold 5,000,000 SBA Threshold/ Significance 5,000,000 Percent Small Business 100.0%
Signigicance test 100% ln 15.42

mean ln(revenue per establishment) 12.39
mean revenue from log 340,659
standard deviation of log revenue per establishment 0.84

7549

A. # of Est.	1379	2373	1836	958	360	80	40	4	
B. Total Revenue	$83,717,000	$396,890,000	$843,305,000	$649,175,000	$515,935,000	$260,124,000	$320,481,000	$390,516,000	
C. Inflated Rev	$94,658,812	$448,763,523	$727,384,964	$734,022,173	$583,367,705	$294,122,207	$362,367,867		
D. rev/est	$68,643	$189,112	$396,179	$767,806	$1,620,466	$3,676,528	$9,059,197	$97,629,000	
E. ln(rev/est)	11.14	12.15	12.89	13.55	14.30	15.12	16.02	18.40	
F. ln(rev/est) x est	15,357	28,832	23,665	12,955	5,147	1,209	641	74	
G. (ln(rev/est)-mu)^2	1.87	0.13	0.15	1.10	3.22	6.83	12.35	34.72	
A*G	2,580	298	272	1,046	1,158	546	494	139	

SBA Threshold 5,000,000 SBA Threshold/ Significance 5,000,000 Percent Small Business 99.9%
Signigicance test 100% ln

mean ln(revenue per establishment) 12.60
mean revenue from log 429,106
standard deviation of log revenue per establishment 0.96

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Kansas	Abilene City	6,242	12,066	75,315,972	85,159,770	18.26
	Andover City	4,047	14,933	60,433,851	68,332,555	18.04
	Anthony City	2,516	10,499	26,415,484	29,867,988	17.21
	Arkansas City	12,762	11,374	145,154,988	164,126,745	18.92
	Atchison City	10,656	10,028	106,858,368	120,824,757	18.61
	Augusta City	7,876	11,683	92,015,308	104,041,709	18.46
	Baldwin City	2,961	9,823	29,085,903	32,887,431	17.31
	Baxter Springs City	4,351	9,245	40,224,995	45,482,402	17.63
	Bel Aire City	3,695	15,778	58,299,710	65,919,482	18.00
	Belleville City	2,517	11,643	29,305,431	33,135,651	17.32
	Belloit City	4,066	10,686	43,449,276	49,128,096	17.71
	Bonner Springs City	6,413	13,007	83,413,891	94,316,087	18.36
	Burlington City	2,735	10,983	30,038,505	33,964,538	17.34
	Chanute City	9,488	10,151	96,312,688	108,900,756	18.51
	Clay Center City	4,613	12,705	58,608,165	66,268,252	18.01
	Coffeyville City	12,917	10,040	129,686,680	146,636,729	18.80
	Colby City	5,396	10,849	58,541,204	66,192,539	18.01
	Columbus City	3,268	8,861	28,957,748	32,742,526	17.30
	Concordia City	6,167	10,212	62,977,404	71,208,551	18.08
	Derby City	14,699	16,227	238,520,673	269,695,325	19.41
	Dodge City	21,129	11,064	233,771,256	264,325,159	19.39
	Edwardsville City	3,979	11,783	46,884,557	53,012,369	17.79
	El Dorado City	11,504	13,251	152,439,504	172,363,347	18.97
	Emporia City	25,512	11,159	284,688,408	321,897,183	19.59
	Eudora City	3,006	10,825	32,539,950	36,792,921	17.42
	Eureka City	2,974	11,705	34,810,670	39,360,425	17.49
	Fairway City	4,173	26,996	112,654,308	127,378,226	18.66
	Fort Riley North CDP	12,848	8,105	104,133,040	117,743,228	18.58
	Fort Scott City	8,362	9,801	81,955,962	92,667,606	18.34
	Fredonia City	2,599	10,406	27,045,194	30,580,001	17.24
	Frontenac City	2,588	10,907	28,227,316	31,916,626	17.28
	Galena City	3,308	7,085	23,437,180	26,500,419	17.09
	Garden City	24,097	11,853	285,621,741	322,952,503	19.59
	Gardner City	3,191	12,870	41,068,170	46,435,780	17.65
	Garnett City	3,210	9,748	31,291,080	35,380,824	17.38
	Girard City	2,794	10,419	29,110,686	32,915,453	17.31
	Goodland City	4,983	9,540	47,537,820	53,751,013	17.80
	Great Bend City	15,427	11,937	184,152,099	208,220,778	19.15
	Hays City	17,767	12,430	220,843,810	249,708,096	19.34
	Haysville City	8,364	12,099	101,196,036	114,422,358	18.56
	Herrinton City	2,685	10,364	27,827,340	31,464,373	17.26
	Hesston City	3,012	10,941	32,954,292	37,261,418	17.43
	Hiawatha City	3,603	12,339	44,457,417	50,268,001	17.73
	Hillsboro City	2,704	10,325	27,918,800	31,567,787	17.27
	Hoisington City	3,182	10,455	33,267,810	37,615,913	17.44
	Holton City	3,196	10,590	33,845,640	38,269,265	17.46
	Hugoton City	3,179	11,843	37,648,897	42,569,608	17.57
	Hutchinson City	39,308	11,849	465,760,492	526,635,388	20.08
	Independence City	9,942	12,541	124,682,622	140,978,641	18.76
	Iola City	6,351	9,311	59,134,161	66,862,996	18.02
	Junction City	20,604	9,792	201,754,368	228,123,664	19.25
	Kingman City	3,196	10,717	34,251,532	38,728,207	17.47
	Lansing City	7,120	11,439	81,445,680	92,090,630	18.34

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Kansas	Larned City	4,490	13,758	61,773,420	69,847,206	18.06
	Leavenworth City	38,495	12,827	493,775,365	558,311,805	20.14
	Leawood City	19,693	34,275	674,977,575	763,197,144	20.45
	Lenexa City	34,034	20,202	687,554,868	777,418,289	20.47
	Liberal City	16,573	11,481	190,274,613	215,143,505	19.19
	Lindsborg City	3,076	9,587	29,489,612	33,343,904	17.32
	Lyons City	3,688	10,554	38,923,152	44,010,408	17.60
	McPherson City	12,422	12,887	160,082,314	181,005,072	19.01
	Manhattan City	37,712	11,273	425,127,376	480,691,524	19.99
	Marysville City	3,359	10,770	36,176,430	40,904,689	17.53
	Merriam City	11,821	16,901	199,786,721	225,898,845	19.24
	Mission City	9,504	19,742	187,627,968	212,150,943	19.17
	Mission Hills City	3,446	76,392	263,246,832	297,653,193	19.51
	Mulvane City	4,674	13,197	61,682,778	69,744,717	18.06
	Neodesha City	2,837	8,783	24,917,371	28,174,071	17.15
	Newton City	16,700	12,055	201,318,500	227,630,828	19.24
	Norton City	3,017	11,198	33,784,366	38,199,983	17.46
	Oaklawn Sunview CDP	3,240	8,075	26,163,000	29,582,504	17.20
	Osage City	2,689	10,260	27,589,140	31,195,041	17.26
	Osawatomie City	4,590	9,518	43,687,620	49,397,592	17.72
	Ottawa City	10,667	11,382	121,411,794	137,280,315	18.74
	Paola City	4,698	11,729	55,102,842	62,304,783	17.95
	Park City	5,050	10,519	53,120,950	60,063,858	17.91
	Parsons City	11,924	11,146	132,904,904	150,275,575	18.83
	Phillipsburg City	2,828	11,174	31,600,072	35,730,201	17.39
	Pittsburg City	17,775	10,289	182,886,975	206,790,303	19.15
	Prairie Village City	23,186	25,216	584,658,176	661,073,000	20.31
	Pratt City	6,687	12,880	86,128,560	97,385,563	18.39
	Roeland Park City	7,706	16,245	125,183,970	141,545,515	18.77
	Russell City	4,781	12,209	58,371,229	66,000,349	18.01
	Salina City	42,303	13,044	551,800,332	623,920,635	20.25
	Scott City	3,785	11,443	43,311,755	48,972,601	17.71
	Shawnee City	37,993	17,268	656,063,124	741,810,574	20.42
	Ulysses City	5,474	11,306	61,889,044	69,977,942	18.06
	Valley Center City	3,624	13,276	48,112,224	54,400,492	17.81
	Wamego City	3,706	10,918	40,462,108	45,750,506	17.64
	Wellington City	8,411	11,933	100,368,463	113,486,621	18.55
	Winfield City	11,931	11,145	132,970,995	150,350,304	18.83
New Hampshire	Allenstown Town	4,649	13,420	62,389,580	70,543,898	18.07
	Alton Town	3,286	14,098	46,326,028	52,380,840	17.77
	Amherst Town	9,068	25,778	233,754,904	264,306,670	19.39
	Atkinson Town	5,188	21,449	111,277,412	125,821,370	18.65
	Auburn Town	4,085	17,321	70,756,285	80,004,131	18.20
	Barnstead Town	3,100	13,613	42,200,300	47,715,879	17.68
	Barrington Town	6,164	14,033	86,499,412	97,804,885	18.40
	Bedford Town	12,563	25,883	325,168,129	367,667,603	19.72
	Belmont Town	5,796	13,267	76,895,532	86,945,778	18.28
	Berlin City	11,824	12,172	143,921,728	162,732,298	18.91
	Boscawen Town	3,586	11,656	41,798,416	47,261,469	17.67
	Bow Town	5,500	19,752	108,636,000	122,834,725	18.63
	Brentwood Town	2,590	16,112	41,730,080	47,184,201	17.67
	Bristol Town	2,537	12,072	30,626,664	34,629,569	17.36
	Canaan Town	3,045	12,474	37,983,330	42,947,751	17.58

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
New Hampshire	Candia Town	3,557	16,308	58,007,556	65,589,144	18.00
	Charlestown Town	4,630	14,200	65,746,000	74,339,002	18.12
	Chester Town	2,691	16,212	43,626,492	49,328,475	17.71
	Chesterfield Town	3,112	15,412	47,962,144	54,230,796	17.81
	Claremont City	13,902	11,552	160,595,904	181,585,789	19.02
	Concord City	36,006	15,981	575,411,886	650,618,220	20.29
	Conway Town	7,940	14,282	113,399,080	128,220,340	18.67
	Danville Town	2,534	15,750	39,910,500	45,126,802	17.62
	Deerfield Town	3,124	15,424	48,184,576	54,482,300	17.81
	Derry CDP	20,446	16,950	346,559,700	391,855,053	19.79
	Derry Town	29,603	16,990	502,954,970	568,691,185	20.16
	Dover City	25,042	15,413	385,972,346	436,418,932	19.89
	Durham CDP	9,236	8,568	79,134,048	89,476,868	18.31
	Durham Town	11,818	12,774	150,963,132	170,694,013	18.96
	East Merrimack CDP	3,656	18,465	67,508,040	76,331,341	18.15
	Enfield Town	3,979	14,349	57,094,671	64,556,944	17.98
	Epping Town	5,162	14,208	73,341,696	82,927,456	18.23
	Epsom Town	3,591	14,514	52,119,774	58,931,828	17.89
	Exeter CDP	9,556	16,511	157,779,116	178,400,846	19.00
	Exeter Town	12,481	18,531	231,285,411	261,514,414	19.38
	Farmington CDP	3,567	11,026	39,329,742	44,470,139	17.61
	Farmington Town	5,739	12,166	69,820,674	78,946,236	18.18
	Franklin City	8,304	12,095	100,436,880	113,563,980	18.55
	Fremont Town	2,576	14,841	38,230,416	43,227,131	17.58
	Gilford Town	5,867	16,541	97,046,047	109,729,965	18.51
	Gilmanton Town	2,609	13,924	36,327,716	41,075,748	17.53
	Goffstown Town	14,621	15,039	219,885,219	248,624,217	19.33
	Gorham Town	3,173	12,585	39,932,205	45,151,344	17.63
	Greenland Town	2,768	19,637	54,355,216	61,459,443	17.93
	Hampstead Town	6,732	18,214	122,616,648	138,642,644	18.75
	Hampton CDP	7,989	18,881	150,840,309	170,555,137	18.95
	Hampton Town	12,278	18,371	225,559,138	255,039,717	19.36
	Hanover CDP	6,538	15,359	100,417,142	113,541,662	18.55
	Hanover Town	9,212	17,496	161,173,152	182,238,483	19.02
	Haverhill Town	4,164	12,034	50,109,576	56,658,898	17.85
	Henniker Town	4,151	14,005	58,134,755	65,732,967	18.00
	Hillsborough Town	4,498	13,155	59,171,190	66,904,865	18.02
	Hinsdale Town	3,936	12,127	47,731,872	53,970,428	17.80
	Hollis Town	5,705	26,005	148,358,525	167,748,984	18.94
	Hooksett CDP	2,573	15,786	40,617,378	45,926,069	17.64
	Hooksett Town	8,767	18,872	165,450,824	187,075,247	19.05
	Hopkinton Town	4,806	23,872	114,728,832	129,723,890	18.68
	Hudson CDP	7,626	16,339	124,601,214	140,886,593	18.76
	Hudson Town	19,530	17,678	345,251,340	390,375,690	19.78
	Jaffrey CDP	2,558	14,331	36,658,698	41,449,990	17.54
	Jaffrey Town	5,361	15,206	81,519,366	92,173,947	18.34
	Keene City	22,430	14,246	319,537,780	361,301,368	19.71
	Kingston Town	5,591	18,382	102,773,762	116,206,293	18.57
	Laconia City	15,743	14,824	233,374,232	263,876,244	19.39
	Lancaster Town	3,522	12,328	43,419,216	49,094,108	17.71
	Lebanon City	12,183	15,012	182,891,196	206,795,075	19.15
	Lee Town	3,729	17,153	63,963,537	72,323,571	18.10
	Litchfield Town	5,516	16,592	91,521,472	103,483,328	18.45

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
New Hanpshire	Littleton CDP	4,633	11,598	53,733,534	60,756,507	17.92
	Littelton Town	5,827	11,809	68,811,043	77,804,646	18.17
	Londonberry CDP	10,114	18,942	191,579,388	216,618,814	19.19
	Londonberry Town	19,781	18,888	373,623,528	422,456,123	19.86
	Loudon Town	4,114	13,873	57,073,522	64,533,031	17.98
	Meredith Town	4,837	13,925	67,355,225	76,158,553	18.15
	Merrimack Town	22,156	19,129	423,822,124	479,215,676	19.99
	Milford CDP	8,015	15,800	126,637,000	143,188,456	18.78
	Milford Town	11,795	16,547	195,171,865	220,680,828	19.21
	Milton Town	3,691	12,397	45,757,327	51,737,810	17.76
	Moultonborough Town	2,956	13,578	40,136,568	45,382,417	17.63
	New Boston Town	3,214	18,607	59,802,898	67,619,137	18.03
	New Ipswich Town	4,014	13,759	55,228,626	62,447,007	17.95
	New London Town	3,180	27,055	86,034,900	97,279,661	18.39
	Newmarket CDP	4,917	13,961	68,646,237	77,618,300	18.17
	Newmarket Town	7,157	15,078	107,913,246	122,017,507	18.62
	Newport CDP	3,772	11,429	43,110,188	48,744,690	17.70
	Newport Town	6,110	11,590	70,814,900	80,070,407	18.20
	Newton Town	3,473	15,948	55,387,404	62,626,538	17.95
	Northfiled Town	4,263	12,728	54,259,464	61,351,176	17.93
	North Hampton Town	3,637	23,672	86,095,064	97,347,689	18.39
	Northwood Town	3,124	12,562	39,243,688	44,372,838	17.61
	Nottingham Town	2,939	25,708	75,555,812	85,430,957	18.26
	Ossipee Town	3,309	12,141	40,174,569	45,425,385	17.63
	Pelham Town	9,408	17,715	166,662,720	188,445,538	19.05
	Pembroke Town	6,561	15,811	103,735,971	117,294,262	18.58
	Peterborough CDP	2,685	18,724	50,273,940	56,844,744	17.86
	Peterborough Town	5,239	19,144	100,295,416	113,404,027	18.55
	Pinardville CDP	4,654	15,524	72,248,696	81,691,601	18.22
	Pittsfield Town	3,701	11,360	42,043,360	47,538,427	17.68
	Plaistow Town	7,316	16,692	122,118,672	138,079,582	18.74
	Plymouth CDP	3,967	7,260	28,800,420	32,564,635	17.30
	Plymouth Town	5,811	9,045	52,560,495	59,430,152	17.90
	Portsmouth City	25,925	15,557	403,315,225	456,028,525	19.94
	Raymond CDP	2,516	12,873	32,388,468	36,621,641	17.42
	Raymond Town	8,713	13,608	118,566,504	134,063,146	18.71
	Rindge Town	4,941	11,303	55,848,123	63,147,473	17.96
	Rochester City	26,630	13,395	356,708,850	403,330,697	19.82
	Rollingsford Town	2,645	16,697	44,163,565	49,935,743	17.73
	Rye Town	4,612	28,020	129,228,240	146,118,371	18.80
	Salem Town	25,746	17,930	461,625,780	521,960,269	20.07
	Sandown Town	4,060	16,423	66,677,380	75,392,114	18.14
	Seabrook Town	6,503	14,515	94,391,045	106,727,955	18.49
	Somersworth City	11,249	13,495	151,805,255	171,646,202	18.96
	South Hooksett CDP	3,638	16,590	60,354,420	68,242,743	18.04
	Strafford Town	2,965	13,771	40,831,015	46,167,629	17.65
	Stratham Town	4,955	23,104	114,480,320	129,442,898	18.68
	Sunapee Town	2,559	14,589	37,333,251	42,212,707	17.56
	Suncook CDP	5,214	15,009	78,256,926	88,485,106	18.30
	Swanzey Town	6,236	14,458	90,160,088	101,944,012	18.44
	Tilton Town	3,240	13,389	43,380,360	49,050,173	17.71
	Tilton-Northfield CDP	3,081	13,264	40,866,384	46,207,620	17.65
	Wakefield Town	3,057	12,992	39,716,544	44,907,496	17.62

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
New Hanpshire	Walpole Town	3,210	15,100	48,471,000	54,806,160	17.82
	Weare Town	6,193	15,728	97,403,504	110,134,142	18.52
	Wilton Town	3,122	16,935	52,871,070	59,781,319	17.91
	Winchester Town	4,038	11,086	44,765,268	50,616,089	17.74
	Windham Town	9,000	23,323	209,907,000	237,341,845	19.29
	Wolfeboro CDP	2,783	13,941	38,797,803	43,868,676	17.60
	Wolfeboro Town	4,807	14,716	70,739,812	79,985,505	18.20
Nebraska	Alliance city	9,765	11,512	112,414,680	127,107,279	18.66
	Auburn city	3,443	12,483	42,978,969	48,596,320	17.70
	Aurora city	3,810	11,140	42,443,400	47,990,752	17.69
	Beatrice city	12,354	11,565	142,874,010	161,547,643	18.90
	Bellevue city	30,982	13,540	419,496,280	474,324,444	19.98
	Blair city	6,860	13,145	90,174,700	101,960,533	18.44
	Broken Bow city	3,778	11,110	41,973,580	47,459,527	17.68
	Central City city	2,868	10,227	29,331,036	33,164,602	17.32
	Chadron city	5,588	9,322	52,091,336	58,899,674	17.89
	Chalco CDP	7,337	12,849	94,273,113	106,594,609	18.48
	Columbus city	19,480	12,059	234,909,320	265,611,968	19.40
	Cozad city	3,823	11,031	42,171,513	47,683,330	17.68
	Crete city	4,841	10,917	52,849,197	59,756,587	17.91
	David city	2,522	10,378	26,173,316	29,594,168	17.20
	Fairbury city	4,335	11,304	49,002,840	55,407,511	17.83
	Falls City city	4,769	9,994	47,661,386	53,890,729	17.80
	Fremont city	23,680	11,504	272,414,720	308,019,324	19.55
	Gering city	7,946	11,552	91,792,192	103,789,431	18.46
	Gothenburg city	3,232	9,958	32,184,256	36,390,738	17.41
	Grand Island city	39,386	11,246	442,934,956	500,826,555	20.03
	Hastings city	22,837	11,905	271,874,485	307,408,480	19.54
	Holdrege city	5,671	12,816	72,679,536	82,178,751	18.22
	Kearney city	24,396	11,350	276,894,600	313,084,724	19.56
	Kimball city	2,574	11,477	29,541,798	33,402,911	17.32
	La Vista city	9,840	11,217	110,375,280	124,801,329	18.64
	Lexington city	6,601	11,054	72,967,454	82,504,300	18.23
	McCook city	8,112	11,631	94,350,672	106,682,305	18.49
	Minden city	2,749	11,436	31,437,564	35,546,454	17.39
	Nebraska City city	6,547	11,073	72,494,931	81,970,018	18.22
	Norfolk city	21,476	11,438	245,642,488	277,747,961	19.44
	North Platte city	22,605	12,123	274,040,415	309,857,497	19.55
	Offutt AFB CDP	10,883	7,648	83,233,184	94,111,761	18.36
	Ogalla city	5,095	11,103	56,569,785	63,963,456	17.97
	O'Neill city	3,852	10,328	39,783,456	44,983,154	17.62
	Papillion city	10,372	14,707	152,541,004	172,478,113	18.97
	Plattsmouth city	6,412	9,900	63,478,800	71,775,479	18.09
	Ralston city	6,236	15,545	96,938,620	109,608,498	18.51
	Schuyler city	4,052	9,798	39,701,496	44,890,482	17.62
	Scottsbluff city	13,711	10,275	140,880,525	159,293,610	18.89
	Seward city	5,634	11,077	62,407,818	70,564,520	18.07
	Sidney city	5,959	11,985	71,418,615	80,753,028	18.21
	Skyline CDP	2,563	24,022	61,568,386	69,615,374	18.06
	South Sioux City city	9,677	10,804	104,550,308	118,215,033	18.59
	Valentine city	2,826	11,390	32,188,140	36,395,130	17.41
	Wahoo city	3,681	11,398	41,956,038	47,439,692	17.67
	Wayne city	5,142	8,735	44,915,370	50,785,809	17.74

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Nebraska	West Point city	3,250	10,825	35,181,250	39,779,439	17.50
	York city	7,884	11,663	91,951,092	103,969,100	18.46
California	Agoura Hills city	20,390	27,539	561,520,210	634,910,901	20.27
	Alamo CDP	12,277	43,705	536,566,285	606,695,498	20.22
	Albany city	16,327	18,158	296,465,666	335,213,729	19.63
	Aliso Viejo CDP	7,612	23,688	180,313,056	203,879,972	19.13
	Alondra Park CDP	12,215	14,366	175,480,690	198,416,016	19.11
	Alpine CDP	9,695	17,620	170,825,900	193,152,845	19.08
	Altadena CDP	42,658	18,524	790,196,792	893,475,513	20.61
	Alta Sierra CDP	5,709	17,917	102,288,153	115,657,215	18.57
	Alturas city	3,231	10,349	33,437,619	37,807,916	17.45
	American Canyon CDP	7,706	15,339	118,202,334	133,651,379	18.71
	Anderson city	8,299	8,964	74,392,236	84,115,301	18.25
	Angwin CDP	3,503	11,257	39,433,271	44,587,200	17.61
	Apple Valley town	46,079	14,643	674,734,797	762,922,635	20.45
	Aptos CDP	9,061	21,744	197,022,384	222,773,210	19.22
	Arcadia city	48,290	25,441	1,228,545,890	1,389,116,838	21.05
	Arcata city	15,197	10,676	162,243,172	183,448,355	19.03
	Armona CDP	3,122	9,048	28,247,856	31,939,851	17.28
	Arnold CDP	3,788	15,167	57,452,596	64,961,650	17.99
	Arroyo Grande city	14,378	16,583	238,430,374	269,593,224	19.41
	Artesia city	15,464	12,724	196,763,936	222,480,982	19.22
	Arvin city	9,286	7,252	67,342,072	76,143,681	18.15
	Ashland CDP	16,590	13,435	222,886,650	252,017,935	19.35
	Atascadero city	23,138	14,639	338,717,182	382,987,518	19.76
	Atherton town	7,163	63,919	457,851,797	517,693,027	20.06
	Atwater city	22,282	104,001	2,317,350,282	2,620,227,964	21.69
	Auburn city	10,592	18,111	191,831,712	216,904,117	19.19
	August CDP	6,376	8,271	52,735,896	59,628,478	17.90
	Avalon city	2,918	17,974	52,448,132	59,303,103	17.90
	Avenal city	9,770	6,461	63,123,970	71,374,273	18.08
	Avocado Heights CDP	14,232	12,374	176,106,768	199,123,923	19.11
	Azusa city	41,333	11,038	456,233,654	515,863,393	20.06
	Banning city	20,570	11,194	230,260,580	260,355,638	19.38
	Barstow city	21,472	11,889	255,280,608	288,645,783	19.48
	Bayview-Montalvin CDP	3,988	12,058	48,087,304	54,372,315	17.81
	Baywood-Los Osos CDP	14,377	16,519	237,493,663	268,534,085	19.41
	Beale AFB CDP	6,912	7,847	54,238,464	61,327,431	17.93
	Beaumont city	9,685	10,224	99,019,440	111,961,281	18.53
	Bell city	34,365	7,104	244,128,960	276,036,615	19.44
	Bell Gardens city	42,355	6,125	259,424,375	293,331,141	19.50
	Belmont city	24,127	25,827	623,128,029	704,570,862	20.37
	Benicia city	24,437	20,663	504,941,731	570,937,615	20.16
	Ben Lomond CDP	7,884	19,008	149,859,072	169,445,653	18.95
	Bermuda Dunes CDP	4,571	23,862	109,073,202	123,329,070	18.63
	Beverly Hills city	31,971	55,463	1,773,207,573	2,004,965,803	21.42
	Big Bear City CDP	4,920	13,029	64,102,680	72,480,900	18.10
	Big Bear Lake city	5,351	16,261	87,012,611	98,385,159	18.40
	Bishop city	3,475	12,421	43,162,975	48,804,376	17.70
	Blackhawk CDP	6,199	53,226	329,947,974	373,072,174	19.74
	Bloomington CDP	15,116	9,848	148,862,368	168,318,679	18.94
	Blythe city	8,428	11,443	96,441,604	109,046,522	18.51
	Bonadelle Ranchos-Madera Ranchos CDP	15,116	9,848	148,862,368	168,318,679	18.94

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
California	Bonita CDP	12,542	21,934	275,096,228	311,051,305	19.56
	Bostonia CDP	13,670	12,788	174,811,960	197,659,883	19.10
	Boulder Creek CDP	6,725	18,464	124,170,400	140,399,471	18.76
	Boyes Hot Springs CDP	5,973	13,961	83,389,053	94,288,002	18.36
	Brawley city	18,923	9,408	178,027,584	201,295,789	19.12
	Brea city	32,873	21,407	703,712,311	795,687,510	20.49
	Brentwood city	7,563	14,260	107,848,380	121,944,163	18.62
	Brisbane city	2,952	19,808	58,473,216	66,115,665	18.01
	Broadmoor CDP	3,739	15,953	59,648,267	67,444,295	18.03
	Buelton CDP	3,506	15,521	54,416,626	61,528,879	17.94
	Burbank CDP	4,902	15,230	74,657,460	84,415,190	18.25
	Burlingame city	26,801	25,031	670,855,831	758,536,688	20.45
	Burney CDP	3,423	11,736	40,172,328	45,422,851	17.63
	Calexico city	18,633	6,595	122,884,635	138,945,657	18.75
	California City city	5,955	13,743	81,839,565	92,535,996	18.34
	Calimesa CDP	4,647	14,696	68,292,312	77,218,117	18.16
	Calipatria city	2,690	6,952	18,700,880	21,145,085	16.87
	Calistoga city	4,468	15,799	70,589,932	79,816,036	18.20
	Cambria CDP	5,382	21,604	116,272,728	131,469,574	18.69
	Cambrian Park	2,998	19,281	57,804,438	65,359,478	18.00
	Cameron Park CDP	11,897	19,301	229,623,997	259,635,853	19.37
	Campbell city	36,048	20,759	748,320,432	846,125,912	20.56
	Camp Pedleton North CDP	10,373	10,710	111,094,830	125,614,924	18.65
	Camp Pendleton South CDP	11,299	7,512	84,878,088	95,971,654	18.38
	Canyon Lake CDP	7,938	22,002	174,651,876	197,478,876	19.10
	Capitola city	10,171	17,075	173,669,825	196,368,471	19.10
	Carmel-by-the-Sea city	4,239	26,575	112,651,425	127,374,966	18.66
	Carmel Valley Village CDP	4,407	27,095	119,407,665	135,014,247	18.72
	Carmichael CDP	48,702	19,300	939,948,600	1,062,799,882	20.78
	Carpinteria city	13,747	15,615	214,659,405	242,715,389	19.31
	Casa Conejo	3,286	17,278	56,775,508	64,196,067	17.98
	Casa de Oro-Mount Helix CDP	30,727	23,068	708,810,436	801,451,960	20.50
	Castro Valley CDP	48,619	20,307	987,306,033	1,116,346,932	20.83
	Castroville CDP	5,272	8,032	42,344,704	47,879,157	17.68
	Cathedral City city	30,085	13,331	401,063,135	453,482,087	19.93
	Cayucos CDP	2,960	22,877	67,715,920	76,566,391	18.15
	Central Valley CDP	4,340	8,983	38,986,220	44,081,719	17.60
	Ceres city	26,314	11,603	305,321,342	345,226,841	19.66
	Channel Islands Beach CDP	3,317	22,740	75,428,580	85,287,095	18.26
	Charter Oak CDP	8,858	15,703	139,097,174	157,277,175	18.87
	Cherryland CDP	11,088	13,214	146,516,832	165,666,582	18.93
	Cherry Valley CDP	5,945	14,363	85,388,035	96,548,251	18.39
	Chico city	40,079	10,584	424,196,136	479,638,571	19.99
	Chino Hills CDP	27,608	19,903	549,482,024	621,299,325	20.25
	Chowchilla city	5,930	10,240	60,723,200	68,659,722	18.04
	Citrus CDP	9,481	11,372	107,817,932	121,909,736	18.62
	Claremont city	32,503	22,161	720,298,983	814,442,060	20.52
	Clayton city	7,317	24,833	181,703,061	205,451,651	19.14
	Clearlake city	11,804	9,531	112,503,924	127,208,187	18.66
	Cloverdale city	4,924	21,418	105,462,232	119,246,146	18.60
	Coachella city	16,896	5,760	97,320,960	110,040,809	18.52
	Coalinga city	8,212	10,779	88,517,148	100,086,339	18.42
	Colton city	40,213	10,924	439,286,812	496,701,598	20.02

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
California	Colusa city	4,934	11,303	55,769,002	63,058,011	17.96
	Commerce city	12,135	9,023	109,494,105	123,804,985	18.63
	Corcoran city	13,364	8,270	110,520,280	124,965,281	18.64
	Corning city	5,870	8,433	49,501,710	55,971,583	17.84
	Coronado city	26,540	21,972	583,136,880	659,352,870	20.31
	Corralitos CDP	2,513	19,272	48,430,536	54,760,407	17.82
	Corte Madera town	8,272	26,660	220,531,520	249,354,990	19.33
	Cotati city	5,714	16,371	93,543,894	105,770,081	18.48
	Coto de Caza CDP	2,853	43,726	124,750,278	141,055,139	18.76
	County Club CDP	9,325	14,948	139,390,100	157,608,386	18.88
	Covina city	43,207	16,259	702,502,613	794,319,705	20.49
	Crescent City city	4,380	9,809	42,963,420	48,578,739	17.70
	Cresent City North CDP	3,853	11,139	42,918,567	48,528,024	17.70
	Crestline CDP	8,594	14,451	124,191,894	140,423,775	18.76
	Crockett CDP	3,228	19,067	61,548,276	69,592,636	18.06
	Cudahy city	22,817	5,935	135,418,895	153,118,145	18.85
	Culver City city	38,793	21,471	832,924,503	941,787,736	20.66
	Cypress city	42,655	19,147	816,715,285	923,459,973	20.64
	Dana Point city	31,896	27,986	892,641,456	1,009,309,694	20.73
	Danville city	31,306	31,265	978,782,090	1,106,708,909	20.82
	Davis city	46,209	15,269	705,565,221	797,782,595	20.50
	Day Valley CDP	2,842	20,468	58,170,056	65,772,882	18.00
	Del Aire CDP	8,040	17,153	137,910,120	155,934,973	18.86
	Delano city	22,762	7,491	170,510,142	192,795,818	19.08
	Delhi CDP	3,280	7,960	26,108,800	29,521,220	17.20
	Del Mar city	4,860	37,414	181,832,040	205,597,488	19.14
	Del Monte Forest CDP	5,069	40,295	204,255,355	230,951,530	19.26
	Denair CDP	3,693	11,699	43,204,407	48,851,223	17.70
	Desert Hot Spring city	11,668	11,185	130,506,580	147,563,790	18.81
	Diamond Springs CDP	2,872	12,773	36,684,056	41,478,662	17.54
	Dinuba city	12,743	8,354	106,455,022	120,368,693	18.61
	Discovery Bay CDP	5,351	29,339	156,992,989	177,511,973	18.99
	Dixon city	10,401	13,984	145,447,584	164,457,583	18.92
	Dixon Lane-Meadow Creek CDP	2,561	14,008	35,874,488	40,563,284	17.52
	Dos Palos city	4,196	10,589	44,431,444	50,238,634	17.73
	Duarte city	20,688	14,103	291,762,864	329,896,270	19.61
	Dublin city	23,229	17,056	396,193,824	447,976,357	19.92
	Durham CDP	4,784	17,016	81,404,544	92,044,118	18.34
	Earlimart CDP	5,881	4,909	28,869,829	32,643,116	17.30
	East Compton CDP	7,967	6,686	53,267,362	60,229,406	17.91
	East Foothills CDP	14,898	17,800	265,184,400	299,844,001	19.52
	East Hemet CDP	17,611	13,568	238,946,048	270,176,296	19.41
	East La Mirada CDP	9,367	16,988	159,126,596	179,924,442	19.01
	East Palo Alto city	23,451	9,968	233,759,568	264,311,944	19.39
	East Porterville CDP	5,790	7,406	42,880,740	48,485,253	17.70
	East Richmond Heights CDP	3,266	18,414	60,140,124	68,000,438	18.04
	East San Gabriel CDP	12,736	19,661	250,402,496	283,130,102	19.46
	Edwards AFB CDP	7,423	8,464	62,828,272	71,039,927	18.08
	El Centro city	31,384	9,898	310,638,832	351,239,327	19.68
	El Cerrito CDP	4,490	16,054	72,082,460	81,503,638	18.22
	Ell Dorando Hills	6,395	20,620	131,864,900	149,099,642	18.82
	El Granada CDP	4,426	22,401	99,146,826	112,105,316	18.53
	Elk Grove CDP	17,483	15,403	269,290,649	304,486,937	19.53

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
California	El Paso de Robles	18,583	12,288	228,347,904	258,192,975	19.37
	El Rio CDP	6,419	10,708	68,734,652	77,718,271	18.17
	El Segundo city	15,223	23,583	359,004,009	405,925,833	19.82
	El Sobrante CDP	9,852	17,373	171,158,796	193,529,251	19.08
	El Toro Station CDP	6,869	9,831	67,529,139	76,355,197	18.15
	El Verano CDP	3,498	14,395	50,353,710	56,934,940	17.86
	Emerald Lake Hills CDP	3,328	28,259	94,045,952	106,337,758	18.48
	Emervvile city	5,740	23,190	133,110,600	150,508,155	18.83
	Escalon city	4,437	12,879	57,144,123	64,612,860	17.98
	Eureka city	27,025	12,915	349,027,875	394,645,818	19.79
	Exeter city	7,276	9,571	69,638,596	78,740,360	18.18
	Fairfax town	6,931	22,228	154,062,268	174,198,206	18.98
	Fair Oaks CDP	26,867	22,806	612,728,802	692,812,456	20.36
	Fairview CDP	9,045	20,889	188,941,005	213,635,594	19.18
	Fallbrook CDP	22,095	13,050	288,339,750	326,025,755	19.60
	Farmersville city	6,235	5,858	36,524,630	41,298,399	17.54
	Felton CDP	5,350	17,383	92,999,050	105,154,026	18.47
	Fillmore city	11,992	10,674	128,002,608	144,732,549	18.79
	Firebaugh city	4,429	6,836	30,276,644	34,233,801	17.35
	Florin CDP	24,330	11,607	282,398,310	319,307,769	19.58
	Folsom city	29,802	17,617	525,021,834	593,642,188	20.20
	Foothill Farms CDP	17,135	13,511	231,510,985	261,769,471	19.38
	Ford CityCDP	3,781	10,425	39,416,925	44,568,717	17.61
	Fort Bragg city	6,078	12,324	74,905,272	84,695,391	18.25
	Fortuna city	8,788	12,907	113,426,716	128,251,588	18.67
	Foster City city	28,176	28,399	800,170,224	904,752,472	20.62
	Fowler city	3,208	9,585	30,748,680	34,767,532	17.36
	Freedom CDP	8,361	8,779	73,401,219	82,994,758	18.23
	French Camp CDP	3,018	5,851	17,658,318	19,966,260	16.81
	Galt city	8,889	11,550	102,667,950	116,086,651	18.57
	Gardena city	49,847	14,601	727,816,047	822,941,604	20.53
	Garden Acres CDP	8,547	7,925	67,734,975	76,587,936	18.15
	George AFB CDP	5,085	7,974	40,547,790	45,847,386	17.64
	Gilroy city	31,487	14,241	448,406,367	507,013,079	20.04
	Glen Avon CDP	12,663	13,365	169,240,995	191,360,793	19.07
	Glendora city	47,828	18,573	888,309,444	1,004,411,488	20.73
	Golden Hills CDP	5,423	12,911	70,016,353	79,167,490	18.19
	Gonzales city	4,660	7,834	36,506,440	41,277,832	17.54
	Grand Terrace city	10,946	18,940	207,317,240	234,413,603	19.27
	Granite Hills CDP	3,157	21,607	68,213,299	77,128,777	18.16
	Grass Valley	9,048	12,078	109,281,744	123,564,868	18.63
	Greenacres CDP	7,379	15,125	111,607,375	126,194,459	18.65
	Greenfield city	7,464	7,710	57,547,440	65,068,890	17.99
	Gridley city	4,631	8,768	40,604,608	45,911,630	17.64
	Groveland-Big Oak Flat CDP	2,753	18,924	52,097,772	58,906,951	17.89
	Grover City city	11,656	12,820	149,429,920	168,960,411	18.95
	Guadalupe city	5,479	6,663	36,506,577	41,277,987	17.54
	Gustine city	3,931	14,303	56,225,093	63,573,713	17.97
	Half Moon Bay city	8,886	22,302	198,175,572	224,077,119	19.23
	Hanford city	30,897	11,283	348,610,851	394,174,289	19.79
	Hawaiian Gardens city	13,639	8,344	113,803,816	128,677,975	18.67
	Hayfork CDP	2,605	8,904	23,194,920	26,226,496	17.08
	Healdsburg city	9,469	14,710	139,288,990	157,494,061	18.87

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
California	Heber CDP	2,566	5,379	13,802,514	15,606,503	16.56
	Hemet city	36,094	12,270	442,873,380	500,756,931	20.03
	Hercules city	16,829	18,948	318,875,892	360,552,971	19.70
	Hermosa Beach city	18,219	33,510	610,518,690	690,313,483	20.35
	Highgrove CDP	3,175	10,797	34,280,475	38,760,933	17.47
	Highland city	34,439	12,567	432,794,913	489,361,208	20.01
	Highland CDP	2,644	25,346	67,014,824	75,773,661	18.14
	Hillsborough town	10,667	63,302	675,242,434	763,496,620	20.45
	Hilmar-Irwin CDP	3,392	12,881	43,692,352	49,402,942	17.72
	Hollister city	19,212	11,415	219,304,980	247,968,141	19.33
	Holtville city	4,820	9,631	46,421,420	52,488,700	17.78
	Home Gardens CDP	7,780	10,269	79,892,820	90,334,812	18.32
	Homeland CDP	3,312	11,855	39,263,760	44,395,533	17.61
	Hughson city	3,259	10,408	33,919,672	38,352,973	17.46
	Humboldt Hill CDP	2,865	13,402	38,396,730	43,415,183	17.59
	Huron city	4,766	5,501	26,217,766	29,644,428	17.20
	Idyllwild-Pine Cove CDP	2,853	18,771	53,553,663	60,553,127	17.92
	Imperial city	4,113	11,143	45,831,159	51,821,291	17.76
	Imperial Beach city	26,512	10,731	284,500,272	321,684,458	19.59
	Indian Wells city	2,647	70,411	186,377,917	210,737,511	19.17
	Indio city	36,793	9,244	340,114,492	384,567,456	19.77
	Ione city	6,516	9,949	64,827,684	73,300,662	18.11
	Isla Vista CDP	20,395	6,007	122,512,765	138,525,183	18.75
	Ivanhoe CDP	3,293	6,122	20,159,746	22,794,625	16.94
	Jackson city	3,545	13,867	49,158,515	55,583,533	17.83
	Joshua Tree CDP	3,898	9,736	37,950,928	42,911,114	17.57
	Kelseyville CDP	2,861	10,055	28,767,355	32,527,248	17.30
	Kensington CDP	4,974	31,217	155,273,358	175,567,586	18.98
	Kentfield CDP	6,030	44,649	269,233,470	304,422,285	19.53
	Kerman city	5,448	8,609	46,901,832	53,031,901	17.79
	Keyes CDP	2,878	8,134	23,409,652	26,469,294	17.09
	King City city	7,634	11,642	88,875,028	100,490,994	18.43
	Kings Beach CDP	2,796	11,926	33,345,096	37,703,300	17.45
	Kingsburg city	7,205	11,079	79,824,195	90,257,217	18.32
	La Canada Flintridge city	19,378	38,132	738,921,896	835,498,988	20.54
	La Crescenta-Montrose CDP	16,968	21,599	366,491,832	414,392,314	19.84
	Ladera Heights CDP	6,316	35,877	226,599,132	256,215,639	19.36
	Lafayette city	23,501	34,281	805,637,781	910,934,639	20.63
	Laguna CDP	9,828	20,506	201,532,968	227,873,327	19.24
	Laguna Beach city	23,170	40,537	939,242,290	1,062,001,257	20.78
	Laguna Hills CDP	46,731	27,237	1,272,812,247	1,439,168,608	21.09
	Laguna Niguel city	44,400	28,614	1,270,461,600	1,436,510,931	21.09
	La Habra Heights city	6,226	33,285	207,232,410	234,317,686	19.27
	Lake Arrowhead CDP	6,539	22,226	145,335,814	164,331,205	18.92
	Lake Elsinore city	18,285	11,765	215,123,025	243,239,604	19.31
	Lake Isabella CDP	3,323	9,458	31,428,934	35,536,696	17.39
	Lakeland Village CDP	5,159	14,488	74,743,592	84,512,579	18.25
	Lake Los Angeles CDP	7,977	11,319	90,291,663	102,092,783	18.44
	Lakeport city	4,390	12,701	55,757,390	63,044,881	17.96
	Lake San Marcos CDP	3,802	32,176	122,333,152	138,322,095	18.75
	Lakeside CDP	39,412	14,241	561,266,292	634,623,796	20.27
	La Mirada city	40,452	16,415	664,019,580	750,806,939	20.44
	Lamont CDP	11,517	5,964	68,687,388	77,664,830	18.17

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
California	La Palma city	15,392	19,337	297,635,104	336,536,012	19.63
	La Puente city	36,955	9,060	334,812,300	378,572,268	19.75
	La Quinta city	11,215	19,678	220,688,770	249,532,792	19.34
	La Riviera CDP	10,986	15,573	171,084,978	193,445,785	19.08
	Larkfield-Wikiup CDP	6,779	22,993	155,869,547	176,241,697	18.99
	Larkspur city	11,070	33,714	373,213,980	421,993,047	19.86
	Lathrop city	6,841	10,318	70,585,438	79,810,955	18.20
	La Verne city	30,897	18,622	575,363,934	650,564,000	20.29
	Lawndale city	27,331	13,550	370,335,050	418,737,841	19.85
	Lemon Grove city	23,984	12,796	306,899,264	347,010,998	19.66
	Lemoore city	13,622	11,787	160,562,514	181,548,035	19.02
	Lennox CDP	22,757	6,449	146,759,893	165,941,411	18.93
	Lenwood CDP	3,190	10,531	33,593,890	37,984,611	17.45
	Lincoln city	7,248	11,702	84,816,096	95,901,560	18.38
	Lincoln Village CDP	4,236	19,244	81,517,584	92,171,932	18.34
	Linda CDP	13,033	6,930	90,318,690	102,123,343	18.44
	Lindsay city	8,338	8,753	72,982,514	82,521,329	18.23
	Live Oak CDP	15,212	1,502	22,848,424	25,834,713	17.07
	Live Oak city	4,320	6,749	29,155,680	32,966,327	17.31
	Livingston city	7,317	6,834	50,004,378	56,539,950	17.85
	Lockeford CDP	2,722	17,493	47,615,946	53,839,350	17.80
	Loma Linda city	17,400	15,365	267,351,000	302,293,776	19.53
	Lomita city	19,382	16,791	325,443,162	367,978,583	19.72
	Lompoc city	37,649	13,384	503,894,216	569,753,190	20.16
	Loomis town	5,705	14,413	82,226,165	92,973,125	18.35
	Los Alamitos city	11,676	19,361	226,059,036	255,604,952	19.36
	Los Altos city	26,303	37,776	993,622,128	1,123,488,540	20.84
	Los Altos Hills town	7,514	62,223	467,543,622	528,651,573	20.09
	Los Banos city	14,519	11,345	164,718,055	186,246,705	19.04
	Los Gatos town	27,357	33,714	922,313,898	1,042,860,324	20.77
	Los Serranos CDP	7,099	13,892	98,619,308	111,508,852	18.53
	Loyola CDP	3,076	41,118	126,478,968	143,009,769	18.78
	Lucas Valley-Marinwood CDP	5,982	27,152	162,423,264	183,651,985	19.03
	McFarland city	7,005	6,056	42,422,280	47,966,872	17.69
	McKinleyville CDP	10,749	13,102	140,833,398	159,240,323	18.89
	Madera city	29,281	8,883	260,103,123	294,098,601	19.50
	Madera Acres CDP	5,245	12,268	64,345,660	72,755,638	18.10
	Magalia CDP	8,987	11,787	105,929,769	119,774,790	18.60
	Mammonth Lakes town	4,785	18,153	86,862,105	98,214,982	18.40
	Manhattan Beach city	32,063	38,932	1,248,276,716	1,411,426,483	21.07
	Manteca city	40,773	12,813	522,424,449	590,705,324	20.20
	March AFB CDP	5,523	11,810	65,226,630	73,751,751	18.12
	Marina city	26,436	11,338	299,731,368	338,906,258	19.64
	Marina del Rev CDP	7,431	42,210	313,662,510	354,658,200	19.69
	Martinez city	31,808	20,060	638,068,480	721,464,030	20.40
	Marysville city	12,324	11,809	145,534,116	164,555,425	18.92
	Mather AFB CDP	4,885	9,267	45,269,295	51,185,992	17.75
	Mayflower Village CDP	4,978	16,445	81,863,210	92,562,732	18.34
	Maywood city	27,850	6,927	192,916,950	218,131,195	19.20
	Meadow Vista CDP	30,667	16,931	519,222,977	587,085,420	20.19
	Meiners Oaks CDP	3,329	14,151	47,108,679	53,265,783	17.79
	Mendota city	6,821	4,920	33,559,320	37,945,523	17.45
	Menlo Park city	28,040	30,130	844,845,200	955,266,468	20.68

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
California	Mentone CDP	5,675	13,486	76,533,050	86,535,920	18.28
	Millbrae city	20,412	21,764	444,246,768	502,309,821	20.03
	Mill Valley city	13,038	36,057	470,111,166	531,554,695	20.09
	Mira Loma CDP	15,786	13,924	219,804,264	248,532,681	19.33
	Mira Monte CDP	7,744	17,213	133,297,472	150,719,452	18.83
	Mission Hills CDP	3,112	14,469	45,027,528	50,912,626	17.75
	Mojave CDP	3,763	11,493	43,248,159	48,900,693	17.71
	Mono Vista CDP	2,599	12,697	32,999,503	37,312,538	17.43
	Monrovia city	35,761	15,495	554,116,695	626,539,747	20.26
	Montara CDP	2,552	27,421	69,978,392	79,124,568	18.19
	Montclair city	28,434	11,530	327,844,020	370,693,233	19.73
	Monterey city	31,954	18,174	580,731,996	656,633,668	20.30
	Monte Sereno city	3,287	48,334	158,873,858	179,638,671	19.01
	Moorpark city	25,494	19,183	489,051,402	552,970,420	20.13
	Morada CDP	3,570	23,844	85,123,080	96,248,667	18.38
	Moraga Town city	15,852	31,122	493,345,944	557,826,259	20.14
	Morgan Hill city	23,928	19,560	468,031,680	529,203,421	20.09
	Morro Bay city	9,664	15,731	152,024,384	171,893,971	18.96
	Moss Beach CDP	3,002	24,094	72,330,188	81,783,744	18.22
	Mount Shasta city	3,460	10,983	38,001,180	42,967,934	17.58
	Muscoy CDP	7,541	7,779	58,661,439	66,328,489	18.01
	Myrtletown CDP	4,413	12,954	57,166,002	64,637,598	17.98
	Needles city	5,191	11,867	61,601,597	69,652,926	18.06
	Nevada City city	2,855	15,412	44,001,260	49,752,225	17.72
	Newark city	37,861	16,721	633,073,781	715,816,524	20.39
	Newman city	4,151	11,728	48,682,928	55,045,787	17.82
	Nipomo CDP	7,109	12,919	91,841,171	103,844,812	18.46
	Norco city	23,302	15,142	352,838,884	398,954,926	19.80
	North Auburn CDP	10,301	13,306	137,065,106	154,979,515	18.86
	North El Monte CDP	3,384	16,158	54,678,672	61,825,174	17.94
	North Fair Oaks CDP	13,912	11,221	156,106,552	176,509,678	18.99
	North Highlands CDP	42,105	11,575	487,365,375	551,064,030	20.13
	Novato city	47,585	21,518	1,023,934,030	1,157,762,208	20.87
	Nuevo CDP	3,010	12,960	39,009,600	44,108,155	17.60
	Oakdale city	11,961	11,994	143,460,234	162,210,487	18.90
	Oakhurst CDP	2,602	14,573	37,918,946	42,874,952	17.57
	Oakley CDP	18,374	15,540	285,531,960	322,850,987	19.59
	Oak View CDP	3,606	18,250	65,809,500	74,410,802	18.13
	Oceano CDP	6,169	10,706	66,045,314	74,677,437	18.13
	Ojai city	7,613	17,478	133,060,014	150,450,958	18.83
	Olivehurst CDP	9,738	7,452	72,567,576	82,052,158	18.22
	Opal Cliffs CDP	5,940	20,188	119,916,720	135,589,835	18.73
	Orange Grove city	5,604	4,385	24,573,540	27,785,302	17.14
	Orangevale CDP	26,266	16,354	429,554,164	485,696,893	20.00
	Orinda city	16,642	40,558	674,966,236	763,184,323	20.45
	Orland city	5,052	9,630	48,650,760	55,009,414	17.82
	Orosi CDP	5,486	6,662	36,547,732	41,324,521	17.54
	Oroville city	11,960	8,774	104,937,040	118,652,311	18.59
	Oroville East CDP	8,462	15,953	134,994,286	152,638,039	18.84
	Pacheco CDP	3,325	17,368	57,748,600	65,296,342	17.99
	Pacifica city	37,670	18,553	698,891,510	790,236,630	20.49
	Pacific Grove city	16,117	19,533	314,813,361	355,959,467	19.69
	Pajaro CDP	3,332	6,555	21,841,260	24,695,913	17.02

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
California	Palermo CDP	5,260	10,029	52,752,540	59,647,297	17.90
	Palmdale East CDP	3,052	12,150	37,081,800	41,928,391	17.55
	Palm Desert city	23,252	25,926	602,831,352	681,621,410	20.34
	Palm Desert County CDP	5,626	19,154	107,760,404	121,844,689	18.62
	Palm Springs city	40,181	19,725	792,570,225	896,159,153	20.61
	Palos Verdes Estates city	13,512	50,273	679,288,776	768,071,819	20.46
	Paradise town	25,408	12,887	327,432,896	370,228,376	19.73
	Paramount city	47,669	9,429	449,471,001	508,216,861	20.05
	Parkway-South Sacramento CDP	31,903	9,337	297,878,311	336,811,006	19.64
	Parlier city	7,938	4,784	37,975,392	42,938,776	17.58
	Patterson city	8,626	11,504	99,233,504	112,203,323	18.54
	Pedley CDP	8,869	15,152	134,383,088	151,946,958	18.84
	Perris city	21,460	9,773	209,728,580	237,140,105	19.28
	Petaluma city	43,184	17,170	741,469,280	838,379,315	20.55
	Phoenix Lake-Cedar Ridge CDP	3,569	15,053	53,724,157	60,745,904	17.92
	Piedmont city	10,602	42,951	455,366,502	514,882,904	20.06
	Pine Hills CDP	2,947	15,937	46,966,339	53,104,840	17.79
	Pinole city	17,460	18,000	314,280,000	355,356,396	19.69
	Pismo Beach city	7,669	20,407	156,501,283	176,956,001	18.99
	Pittsburg city	47,564	13,686	650,960,904	736,041,494	20.42
	Placentia city	41,259	18,924	780,785,316	882,833,957	20.60
	Placerville city	8,355	13,783	115,156,965	130,207,980	18.68
	Planada CDP	3,531	5,197	18,350,607	20,749,031	16.85
	Pleasent Hill city	31,585	21,950	693,290,750	783,903,851	20.48
	Point Dume CDP	2,809	40,348	113,337,532	128,150,747	18.67
	Pollock Pines CDP	4,291	14,097	60,490,227	68,396,300	18.04
	Porterville city	29,563	9,666	285,755,958	323,104,262	19.59
	Port Hueneme city	20,319	13,552	275,363,088	311,353,044	19.56
	Portola Hills CDP	2,677	24,711	66,151,347	74,797,328	18.13
	Portola Valley town	4,194	55,721	233,693,874	264,237,663	19.39
	Poway city	43,516	20,720	901,651,520	1,019,497,374	20.74
	Prunedale CDP	7,393	16,545	122,317,185	138,304,041	18.74
	Quartz Hill CDP	9,626	15,359	147,845,734	167,169,171	18.93
	Quincy-East Quincy CDP	4,271	13,545	57,850,695	65,411,781	18.00
	Ramona CDP	13,040	12,823	167,211,920	189,066,518	19.06
	Rancho Cordova CDP	48,731	13,859	675,362,929	763,632,864	20.45
	Rancho Mirage city	9,778	42,189	412,524,042	466,440,934	19.96
	Rancho Palos Verdes city	41,659	36,509	1,520,928,431	1,719,713,777	21.27
	Rancho Rinconada CDP	4,206	17,834	75,009,804	84,813,585	18.26
	Rancho San Diego	6,977	20,037	139,798,149	158,069,767	18.88
	Rancho Santa Margarita CDP	11,390	21,495	244,828,050	276,827,076	19.44
	Red Bluff city	12,363	9,997	123,592,911	139,746,504	18.76
	Reedley city	15,791	8,791	138,818,681	156,962,283	18.87
	Ridgecrest city	27,725	16,258	450,753,050	509,666,474	20.05
	Rio Dell city	3,012	9,559	28,791,708	32,554,784	17.30
	Rio del Mar CDP	8,919	28,066	250,320,654	283,037,563	19.46
	Rio Linda CDP	9,481	12,272	116,350,832	131,557,886	18.69
	Rio Vista city	3,316	15,708	52,087,728	58,895,594	17.89
	Ripon city	7,455	13,447	100,247,385	113,349,718	18.55
	Riverbank city	8,547	10,167	86,897,349	98,254,833	18.40
	Rocklin city	19,033	17,729	337,436,057	381,538,950	19.76
	Rodeo CDP	7,589	15,111	114,677,379	129,665,712	18.68
	Rohnert Park city	36,326	14,861	539,840,686	610,397,864	20.23

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
California	Rolling Hills Estates city	7,789	38,905	303,031,045	342,637,203	19.65
	Rosamond CDP	7,430	12,135	90,163,050	101,947,361	18.44
	Rosedale CDP	4,673	18,450	86,216,850	97,485,392	18.40
	Roseland CDP	8,779	10,630	93,320,770	105,517,795	18.47
	Rosemont CDP	22,851	14,439	329,945,589	373,069,477	19.74
	Roseville city	44,685	17,430	778,859,550	880,656,493	20.60
	Rossmoor CDP	9,893	28,876	285,670,268	323,007,372	19.59
	Rowland Heights CDP	42,647	15,640	666,999,080	754,175,860	20.44
	Rubidoux CDP	24,367	11,018	268,475,606	303,565,368	19.53
	Running Springs CDP	4,195	19,209	80,581,755	91,113,790	18.33
	St. Helena city	4,990	19,199	95,803,010	108,324,463	18.50
	Salida CDP	4,499	12,289	55,288,211	62,514,380	17.95
	San Anelmo town	11,743	25,508	299,540,444	338,690,380	19.64
	San Antonio Heights CDP	2,935	34,405	100,978,675	114,176,588	18.55
	San Bruno city	38,961	18,289	712,557,729	805,689,024	20.51
	San Carlos city	26,167	28,161	736,888,887	833,200,265	20.54
	San Clemente city	41,100	23,841	979,865,100	1,107,933,469	20.83
	San Diego Country Estates CDP	6,874	20,412	140,312,088	158,650,878	18.88
	San Dimas city	32,397	20,246	655,909,662	741,637,055	20.42
	San Fernando city	22,580	8,876	200,420,080	226,614,984	19.24
	San Gabriel city	37,120	13,733	509,768,960	576,395,763	20.17
	Sanger city	16,839	8,461	142,474,779	161,096,233	18.90
	San Jacinto city	16,210	9,361	151,741,810	171,574,465	18.96
	San Juan Capistrano city	26,183	233,444	6,112,264,252	6,911,137,190	22.66
	San Lorenzo CDP	19,987	15,817	316,134,379	357,453,142	19.69
	San Luis Obispo city	41,958	14,760	619,300,080	700,242,600	20.37
	San Marcos city	38,974	13,590	529,656,660	598,882,785	20.21
	San Marino city	12,959	49,537	641,949,983	725,852,846	20.40
	San Pablo city	25,158	10,505	264,284,790	298,826,812	19.52
	San Rafael city	48,404	24,230	1,172,828,920	1,326,117,660	21.01
	San Ramon city	35,303	25,196	889,494,388	1,005,751,305	20.73
	Santa Cruz city	49,040	15,538	761,983,520	861,574,766	20.57
	Santa Fe Springs city	15,520	11,196	173,761,920	196,472,603	19.10
	Santa Paula city	25,062	11,650	291,972,300	330,133,080	19.62
	Santa Venetia CDP	3,362	19,907	66,927,334	75,674,737	18.14
	Santa Ynez CDP	4,200	22,036	92,551,200	104,647,642	18.47
	Saratoga city	28,061	40,660	1,140,960,260	1,290,083,766	20.98
	Sausalito city	7,152	48,996	350,419,392	396,219,207	19.80
	Scotts Valley city	8,615	21,514	185,343,110	209,567,454	19.16
	Seal Beach city	25,098	25,695	644,893,110	729,180,639	20.41
	Searles Valley	2,740	10,328	28,298,720	31,997,363	17.28
	Seaside city	38,901	10,409	404,920,509	457,843,620	19.94
	Sebastopol city	7,004	15,899	111,356,596	125,910,903	18.65
	Sedco Hills CDP	3,008	10,657	32,056,256	36,246,009	17.41
	Selma city	14,757	8,175	120,638,475	136,405,924	18.73
	Shafter city	8,409	10,430	87,705,870	99,169,027	18.41
	Sierra Madre city	10,762	24,947	268,479,614	303,569,900	19.53
	Signal Hill city	8,371	18,270	152,938,170	172,927,189	18.97
	Solana Beach city	12,962	29,496	382,327,152	432,297,311	19.88
	Soledad city	7,146	6,889	49,228,794	55,662,997	17.83
	Solvang city	4,741	20,946	99,304,986	112,284,148	18.54
	Sonoma city	8,121	18,527	150,457,767	170,122,597	18.95
	Sonora city	4,153	14,310	59,429,430	67,196,857	18.02

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
California	Soquel CDP	9,188	21,450	197,082,600	222,841,296	19.22
	South El Monte city	20,850	8,043	167,696,550	189,614,489	19.06
	South Lake Tahoe city	21,586	12,580	271,551,880	307,043,711	19.54
	South Oroville CDP	7,463	7,881	58,815,903	66,503,142	18.01
	South Pasadena city	23,936	26,106	624,873,216	706,544,145	20.38
	South San Gabriel CDP	7,700	10,810	83,237,000	94,116,076	18.36
	South San Jose Hills CDP	17,814	8,752	155,908,128	176,285,320	18.99
	South Santa Rosa CDP	4,128	12,890	53,209,920	60,164,457	17.91
	South Whittier CDP	49,514	12,378	612,884,292	692,988,269	20.36
	South Yuba City CDP	8,816	18,498	163,078,368	184,392,711	19.03
	Stanford CDP	18,097	14,177	256,561,169	290,093,714	19.49
	Stanton city	30,491	12,803	390,376,273	441,398,452	19.91
	Stawberry CDP	4,377	35,992	157,536,984	178,127,068	19.00
	Suisun City city	22,686	12,539	284,459,754	321,638,644	19.59
	Sun City CDP	14,930	15,148	226,159,640	255,718,705	19.36
	Sunnyslope CDP	3,766	12,209	45,979,094	51,988,562	17.77
	Susanville city	7,279	11,155	81,197,245	91,809,725	18.34
	Sutter CDP	2,606	9,602	25,022,812	28,293,294	17.16
	Taft city	5,902	13,447	79,364,194	89,737,094	18.31
	Tamalpais-Homestead Valley CDP	9,601	34,172	328,085,372	370,966,130	19.73
	Tara Hills CDP	4,998	15,598	77,958,804	88,148,020	18.29
	Tehachapi city	5,791	12,026	69,642,566	78,744,849	18.18
	Temecula city	27,099	16,895	457,837,605	517,676,980	20.06
	Temple City city	31,100	16,107	500,927,700	566,398,950	20.15
	Templeton CDP	2,887	13,890	40,100,430	45,341,556	17.63
	Terra Bella CDP	2,740	5,204	14,258,960	16,122,606	16.60
	Thermaltoito CDP	5,646	9,085	51,293,910	57,998,024	17.88
	Thousand Palms CDP	4,122	12,384	51,046,848	57,718,671	17.87
	Tiburon town	7,532	52,398	394,661,736	446,244,025	19.92
	Tierra Buena CDP	2,878	13,557	39,017,046	44,116,574	17.60
	Trabuco Highlands CDP	3,191	23,661	75,502,251	85,370,395	18.26
	Tracy city	33,558	14,298	479,812,284	542,523,750	20.11
	Truckee CDP	3,484	15,689	54,660,476	61,804,600	17.94
	Tulare city	33,249	9,878	328,433,622	371,359,896	19.73
	Turlock city	42,198	11,936	503,675,328	569,505,693	20.16
	Tustin Foothills CDP	24,358	35,696	869,483,168	983,124,618	20.71
	Twentynine Palms city	11,821	10,892	128,754,332	145,582,523	18.80
	Twentynine Palms CDP	10,606	8,569	90,882,814	102,761,198	18.45
	Twin Lakes CDP	5,379	18,440	99,188,760	112,152,731	18.54
	Ukiah city	14,599	11,533	168,370,267	190,376,261	19.06
	Valinda CDP	18,735	11,431	214,159,785	242,150,469	19.31
	Valle Vista CDP	8,751	14,135	123,695,385	139,862,372	18.76
	Vandenberg AFB CDP	9,846	9,184	90,425,664	102,244,298	18.44
	Vandenberg CDP	5,971	20,286	121,127,706	136,959,097	18.74
	Victorville city	40,674	11,474	466,693,476	527,690,313	20.08
	View Park-Windsor Hills CDP	11,769	22,201	261,283,569	295,433,331	19.50
	Villa Park city	6,299	42,565	268,116,935	303,159,818	19.53
	Vincent CDP	13,713	11,843	162,403,059	183,629,139	19.03
	Vine Hill CDP	3,214	14,728	47,335,792	53,522,580	17.80
	Walnut city	29,105	18,749	545,689,645	617,011,282	20.24
	Walnut Park CDP	14,722	7,891	116,171,302	131,354,891	18.69
	Wasco city	12,412	7,097	88,087,964	99,601,061	18.42
	Waterford city	4,771	8,753	41,760,563	47,218,669	17.67

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
California	Watsonville city	31,099	10,422	324,113,778	366,475,449	19.72
	Weaverville CDP	3,370	12,629	42,559,730	48,122,287	17.69
	Weed city	3,062	8,482	25,971,884	29,366,409	17.20
	West Athens CDP	8,859	10,614	94,029,426	106,319,072	18.48
	West Bishop CDP	2,908	19,475	56,633,300	64,035,272	17.97
	West Carson CDP	20,143	17,538	353,267,934	399,440,053	19.81
	West Compton CDP	5,451	11,765	64,131,015	72,512,939	18.10
	West Hollywood city	36,118	24,386	880,773,548	995,890,651	20.72
	Westlake Village city	7,455	37,658	280,740,390	317,433,159	19.58
	West Menlo Park CDP	3,959	28,934	114,549,706	129,521,353	18.68
	Westmont CDP	31,044	8,605	267,133,620	302,047,984	19.53
	West Pittsburg CDP	17,453	12,642	220,640,826	249,478,582	19.33
	West Puente Valley CDP	20,254	9,429	190,974,966	215,935,394	19.19
	West Sacramento city	28,898	11,510	332,615,980	376,088,889	19.75
	West Whittier-Los Nietos CDP	24,164	11,573	279,649,972	316,200,223	19.57
	Widomar CDP	10,411	14,818	154,270,198	174,433,313	18.98
	Willitis city	5,027	106,898	537,376,246	607,611,321	20.23
	Willowbrook CDP	32,772	7,182	235,368,504	266,131,167	19.40
	Willows city	5,988	9,644	57,748,272	65,295,971	17.99
	Wilton CDP	3,858	19,237	74,216,346	83,916,422	18.25
	Windsor CDP	13,371	15,485	207,049,935	234,111,362	19.27
	Winters city	4,639	11,561	53,631,479	60,641,113	17.92
	Winton CDP	7,559	8,473	64,047,407	72,418,403	18.10
	Woodbridge CDP	3,456	16,750	57,888,000	65,453,962	18.00
	Woodcrest CDP	7,796	19,672	153,362,912	173,407,445	18.97
	Woodlake city	5,678	6,241	35,436,398	40,067,935	17.51
	Woodland city	39,802	13,854	551,416,908	623,487,098	20.25
	Woodside town	5,035	68,236	343,568,260	388,472,632	19.78
	Wrightwood CDP	3,308	20,713	68,518,604	77,473,986	18.17
	Yountville town	3,259	113,649	370,382,091	418,791,030	19.85
	Yreka city	6,948	11,901	82,688,148	93,495,489	18.35
	Yuba City city	27,437	11,815	324,168,155	366,536,933	19.72
	Yucaipa city	32,824	14,131	463,835,944	524,459,302	20.08
	Yucca Valley CDP	13,701	12,902	176,770,302	199,874,180	19.11
Pennsylvania	Adams Township	3,911	15,568	60,886,448	68,844,307	18.05
	Adams Township	6,869	9,643	66,237,767	74,895,043	18.13
	Akron Borough	3,869	16,553	64,043,557	72,414,050	18.10
	Aldan Borough	4,549	17,290	78,652,210	88,932,054	18.30
	Aliquippa City	13,374	8,892	118,921,608	134,464,662	18.72
	Allegheny Township	7,023	10,980	77,112,540	87,191,149	18.28
	Allegheny Township	7,895	12,487	98,584,865	111,469,907	18.53
	Allen Township	2,626	14,871	39,051,246	44,155,244	17.60
	Allsace Township	3,459	14,802	51,200,118	57,891,973	17.87
	Ambler Borough	6,609	15,778	104,276,802	117,905,780	18.59
	Ambridge Borough	8,133	9,006	73,245,798	82,819,024	18.23
	Amity Township	6,434	15,907	102,345,638	115,722,213	18.57
	Amity Gardens CDP	2,714	16,548	44,911,272	50,781,175	17.74
	Amwell Township	4,176	11,483	47,953,008	54,220,466	17.81
	Ancient Oaks CDP	2,663	16,494	43,923,522	49,664,326	17.72
	Annville Township	4,294	10,717	46,018,798	52,033,455	17.77
	Annville CDP	4,294	10,717	46,018,798	52,033,455	17.77
	Antis Township	6,176	12,129	74,908,704	84,699,272	18.25
	Antrim Township	10,107	12,444	125,771,508	142,209,844	18.77

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	Archbald Borough	6,291	11,799	74,227,509	83,929,044	18.25
	Ardmore CDP	12,646	22,295	281,942,570	318,792,464	19.58
	Arlington Heights CDP	4,768	15,259	72,754,912	82,263,979	18.23
	Armagh Township	3,627	9,563	34,685,001	39,218,331	17.48
	Armstrong Township	3,048	10,507	32,025,336	36,211,047	17.40
	Arnold City	6,113	10,745	65,684,185	74,269,108	18.12
	Ashland Borough	3,859	9,824	37,910,816	42,865,760	17.57
	Ashley Borough	3,291	10,294	33,877,554	38,305,350	17.46
	Aspinwall Borough	2,880	22,365	64,411,200	72,829,744	18.10
	Aston Township	15,080	16,176	243,934,080	275,816,264	19.44
	Athens Borough	3,468	10,667	36,993,156	41,828,161	17.55
	Athens Township	4,755	13,449	63,949,995	72,308,259	18.10
	Audubon CDP	6,328	20,264	128,230,592	144,990,330	18.79
	Avalon Borough	5,784	12,262	70,923,408	80,193,097	18.20
	Avoca Borough	2,897	11,401	33,028,697	37,345,548	17.44
	Avon Heights CDP	2,714	11,001	29,856,714	33,758,987	17.33
	Baden Borough	5,074	11,298	57,326,052	64,818,567	17.99
	Baldwin Borough	21,923	13,977	306,417,771	346,466,574	19.66
	Bangor Borough	5,383	13,229	71,211,707	80,519,077	18.20
	Barnesboro Borough	2,530	8,648	21,879,440	24,739,083	17.02
	Barrett Township	3,216	15,010	48,272,160	54,581,331	17.82
	Bart Township	2,774	9,680	26,852,320	30,361,918	17.23
	Beat Creek Township	2,721	19,250	52,379,250	59,225,218	17.90
	Beaver Borough	5,028	16,803	84,485,484	95,527,737	18.37
	Beaver Falls City	10,687	8,025	85,763,175	96,972,422	18.39
	Bedford Borough	3,137	12,838	40,272,806	45,536,462	17.63
	Bedford Township	4,945	11,092	54,849,940	62,018,827	17.94
	Bedminster Township	4,602	18,238	83,931,276	94,901,094	18.37
	Bellefonte Borough	6,358	11,890	75,596,620	85,477,098	18.26
	Bellevue Borough	9,126	16,327	149,000,202	168,474,528	18.94
	Belmont CDP	3,184	12,679	40,369,936	45,646,287	17.64
	Benner Township	5,085	9,443	48,017,655	54,293,563	17.81
	Bentleyville Borough	2,673	9,632	25,746,336	29,111,382	17.19
	Benzinger Township	8,509	11,048	94,007,432	106,294,203	18.48
	Bern Township	6,303	15,188	95,729,964	108,241,870	18.50
	Berwick Borough	10,976	10,246	112,460,096	127,158,631	18.66
	Bethel Township	3,676	11,267	41,417,492	46,830,758	17.66
	Bethel Township	3,330	17,936	59,726,880	67,533,183	18.03
	Bethel Township	4,343	12,490	54,244,070	61,333,770	17.93
	Bethel Park Borough	33,823	17,603	595,386,269	673,203,254	20.33
	Bethlehem Township	16,425	17,659	290,049,075	327,958,489	19.61
	Birdsboro Borough	4,222	13,898	58,677,356	66,346,486	18.01
	Birmingham Township	2,636	35,535	93,670,260	105,912,963	18.48
	Birmingham Township	3,118	34,995	109,114,410	123,375,663	18.63
	Blair Township	3,994	13,994	55,892,036	63,197,125	17.96
	Blairsville Borough	3,595	11,265	40,497,675	45,790,721	17.64
	Blakely Borough	7,222	12,342	89,133,924	100,783,728	18.43
	Bloomsburg Town	12,439	9,571	119,053,669	134,613,984	18.72
	Blue Bell CDP	6,091	36,091	219,830,281	248,562,099	19.33
	Boggs Township	2,686	10,737	28,839,582	32,608,915	17.30
	Boothwyn CDP	5,069	15,060	76,339,140	86,316,666	18.27
	Boyertown Borough	3,759	14,272	53,648,448	60,660,300	17.92
	Brackenridge Borough	3,784	11,300	42,759,200	48,347,827	17.69

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	Braddock Borough	4,682	8,411	39,380,302	44,527,307	17.61
	Bradford Township	2,504	9,087	22,753,848	25,727,776	17.06
	Bradford City	9,625	10,722	103,199,250	116,687,392	18.58
	Bradford Township	5,065	12,556	63,596,140	71,908,155	18.09
	Brecknock Township	3,770	15,582	58,744,140	66,421,999	18.01
	Brecknock Township	5,197	11,855	61,610,435	69,662,919	18.06
	Brentwood Borough	10,823	13,290	143,837,670	162,637,253	18.91
	Bressler-Enhaut-Oberlin CDP	2,660	13,236	35,207,760	39,809,414	17.50
	Briar Creek Township	3,010	12,220	36,782,200	41,589,634	17.54
	Bridgeport Borough	4,292	14,287	61,319,804	69,334,302	18.05
	Bridgeville Borough	5,445	13,712	74,661,840	84,420,142	18.25
	Brighton Township	7,489	15,908	119,135,012	134,705,958	18.72
	Bristol Borough	10,405	11,911	123,933,955	140,132,123	18.76
	Brittany Farms Highlands CDP	2,747	21,367	58,695,149	66,366,605	18.01
	Brookhaven Borough	8,567	18,188	155,816,596	176,181,825	18.99
	Brookville Borough	4,184	11,830	49,496,720	55,965,941	17.84
	Broomall CDP	10,930	18,145	198,324,850	224,245,908	19.23
	Brown Township	3,320	11,866	39,395,120	44,544,062	17.61
	Brownsville Borough	3,164	7,995	25,296,180	28,602,391	17.17
	Bryn Mawr CDP	3,271	19,170	62,705,070	70,900,623	18.08
	Buckingham Township	9,364	24,751	231,768,364	262,060,489	19.38
	Buffalo Township	6,317	13,163	83,150,671	94,018,464	18.36
	Buffalo Township	2,877	10,470	30,122,190	34,059,160	17.34
	Bullskin Township	7,323	10,247	75,038,781	84,846,350	18.26
	Burrel Township	3,669	11,332	41,577,108	47,011,236	17.67
	Bushkill Township	5,512	14,388	79,306,656	89,672,036	18.31
	Butler Township	2,514	15,172	38,142,408	43,127,621	17.58
	Butler City	14,714	10,162	149,523,668	169,066,411	18.95
	Butler Township	17,625	14,716	259,369,500	293,269,094	19.50
	Butler Township	6,020	13,205	79,494,100	89,883,979	18.31
	Butler Township	4,099	12,547	51,430,153	58,152,074	17.88
	Caernarvon Township	3,946	12,249	48,334,554	54,651,880	17.82
	California Township	5,748	7,749	44,541,252	50,362,794	17.73
	Cain Township	11,997	15,711	188,484,867	213,119,839	19.18
	Cambria Township	6,357	9,834	62,514,738	70,685,414	18.07
	Camp Hill Borough	7,831	20,698	162,086,038	183,270,683	19.03
	Canonsburg Borough	9,200	11,157	102,644,400	116,060,023	18.57
	Canton Township	9,256	11,328	104,851,968	118,556,120	18.59
	Carbondale City	10,664	11,098	118,349,072	133,817,296	18.71
	Carlisle Borough	18,419	13,797	254,126,943	287,341,334	19.48
	Carnegie Borough	9,278	13,082	121,374,796	137,238,482	18.74
	Carnot-Moon CDP	10,187	16,926	172,425,162	194,961,131	19.09
	Carroll Township	4,597	11,659	53,596,423	60,601,475	17.92
	Carroll Township	6,210	13,405	83,245,050	94,125,178	18.36
	Carroll Township	3,287	18,183	59,767,521	67,579,136	18.03
	Castle Shannon Borough	9,135	13,539	123,678,765	139,843,580	18.76
	Catasaqua Borough	6,662	12,886	85,846,532	97,066,674	18.39
	Cecil Township	8,948	15,084	134,971,632	152,612,424	18.84
	Cecil-Bishop CDP	2,701	14,366	38,802,566	43,874,061	17.60
	Center Township	10,742	13,945	149,797,190	169,375,683	18.95
	Center Township	6,239	14,885	92,867,515	105,005,299	18.47
	Center Township	5,257	10,788	56,712,516	64,124,842	17.98
	Centerville Borough	3,842	10,152	39,003,984	44,101,605	17.60

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	Centre Township	3,154	13,743	43,345,422	49,010,669	17.71
	Chalfont Borough	3,069	19,098	58,611,762	66,272,319	18.01
	Chambersburg Borough	16,647	12,744	212,149,368	239,877,290	19.30
	Chanceford Township	5,026	11,295	56,768,670	64,188,335	17.98
	Charleroi Borough	5,014	10,419	52,240,866	59,068,747	17.89
	Charleston Township	2,957	10,871	32,145,547	36,346,970	17.41
	Charleston Township	2,754	31,737	87,403,698	98,827,361	18.41
	Chartiers Township	7,603	13,886	105,575,258	119,373,944	18.60
	Cheltenham Township	34,923	25,653	895,879,719	1,012,971,198	20.74
	Cherryhill Township	2,764	9,791	27,062,324	30,599,370	17.24
	Chester City	41,856	9,115	381,517,440	431,381,769	19.88
	Chester Township	5,399	11,034	59,572,566	67,358,700	18.03
	Chesterbrook CDP	4,561	35,737	162,996,457	184,300,094	19.03
	Chester Township	5,399	11,034	59,572,566	67,358,700	18.03
	Chestnuthill Township	8,798	13,484	118,632,232	134,137,465	18.71
	Chippewa Township	6,988	15,589	108,935,932	123,173,858	18.63
	Churchill Borough	3,883	28,639	111,205,237	125,739,761	18.65
	Churchville CDP	4,255	20,825	88,610,375	100,191,751	18.42
	Clairton City	9,656	10,936	105,598,016	119,399,677	18.60
	Clarion Borough	6,457	7,826	50,532,482	57,137,077	17.86
	Clarion Township	3,306	9,317	30,802,002	34,827,824	17.37
	Clarks Summit Borough	5,433	16,783	91,182,039	103,099,531	18.45
	Clay Township	5,050	12,899	65,139,950	73,653,741	18.11
	Clearfield Township	2,635	9,989	26,321,015	29,761,172	17.21
	Clearfield Borough	6,633	12,338	81,837,954	92,534,175	18.34
	Clifton Heights Borough	7,111	13,278	94,419,858	106,760,533	18.49
	Clinton Township	2,556	12,911	33,000,516	37,313,683	17.43
	Clinton Township	3,086	11,695	36,090,770	40,807,834	17.52
	Coal Township	9,922	9,563	94,884,086	107,285,436	18.49
	Coaldale Borough	2,531	9,529	24,117,899	27,270,108	17.12
	Coatesville City	11,038	10,570	116,671,660	131,920,646	18.70
	Codorus Township	3,653	14,441	52,752,973	59,647,787	17.90
	Colebrookdale Township	5,469	15,095	82,554,555	93,344,435	18.35
	Colerain Township	2,867	12,376	35,481,992	40,119,488	17.51
	College Township	6,709	16,905	113,415,645	128,239,070	18.67
	Collegeville Borough	4,227	16,269	68,769,063	77,757,180	18.17
	Collier Township	4,841	12,853	62,221,373	70,353,706	18.07
	Collingdale Borough	9,175	12,250	112,393,750	127,083,613	18.66
	Colonial park CDP	13,777	17,325	238,686,525	269,882,854	19.41
	Columbia Borough	10,701	11,723	125,447,823	141,843,853	18.77
	Colwyn Borough	2,613	11,268	29,443,284	33,291,521	17.32
	Concord Township	6,933	21,657	150,147,981	169,772,322	18.95
	Conemaugh Township	7,737	11,012	85,199,844	96,335,464	18.38
	Conestoga Township	3,470	13,676	47,455,720	53,658,183	17.80
	Conewago Township	4,532	14,005	63,470,660	71,766,275	18.09
	Conewago Township	2,832	17,050	48,285,600	54,596,528	17.82
	Conewago Township	4,997	13,547	67,694,359	76,542,012	18.15
	Conewago Township	4,475	11,227	50,240,825	56,807,301	17.86
	Connellsville City	9,229	8,596	79,332,484	89,701,240	18.31
	Connellsville Township	2,553	11,667	29,785,851	33,678,862	17.33
	Connoquenessing Township	3,093	11,942	36,936,606	41,764,220	17.55
	Conoy Township	2,687	12,415	33,359,105	37,719,140	17.45
	Conshohocken Borough	8,064	13,566	109,396,224	123,694,310	18.63

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	Coolbaugh Township	6,756	12,295	83,065,020	93,921,618	18.36
	Copper Toenship	2,590	8,400	21,756,000	24,599,509	17.02
	Coopersburg Borough	2,599	14,609	37,968,791	42,931,312	17.58
	Coplay Borough	3,267	12,906	42,163,902	47,674,724	17.68
	Coraopolis Borough	6,747	12,126	81,814,122	92,507,228	18.34
	Cornplanter Township	2,968	11,927	35,399,336	40,026,029	17.51
	Cornwall Borough	3,231	19,064	61,595,784	69,646,353	18.06
	Cornwells Heights-Eddington CDP	3,621	13,723	49,690,983	56,185,594	17.84
	Corry City	7,216	9,913	71,532,208	80,881,468	18.21
	Coudersport Borough	2,854	11,902	33,968,308	38,407,966	17.46
	Cowanshannock Township	2,813	9,356	26,318,428	29,758,247	17.21
	Crafton Borough	7,188	14,833	106,619,604	120,554,786	18.61
	Cranberry Township	14,816	16,494	244,375,104	276,314,930	19.44
	Cranberry Township	7,256	10,494	76,144,464	86,096,545	18.27
	Cresson Township	3,284	10,336	33,943,424	38,379,830	17.46
	Croydon CDP	9,967	12,821	127,786,907	144,488,656	18.79
	Cumberland Township	5,431	16,029	87,053,499	98,431,391	18.40
	Cumberland Township	6,742	9,089	61,278,038	69,287,078	18.05
	Cumru Township	13,142	19,100	251,012,200	283,819,495	19.46
	Curwnsville Borough	2,924	10,723	31,354,052	35,452,027	17.38
	Dallas Borough	2,567	17,470	44,845,490	50,706,796	17.74
	Dallas Township	7,625	16,238	123,814,750	139,997,338	18.76
	Dallastown Borough	3,974	12,259	48,717,266	55,084,613	17.82
	Damascus Township	3,081	11,449	35,274,369	39,884,729	17.50
	Danville Borough	5,165	12,236	63,198,940	71,459,041	18.08
	Darby Borough	11,140	10,308	114,831,120	129,839,547	18.68
	Darby Township	10,955	12,182	133,453,810	150,896,223	18.83
	Darby Township	10,955	12,182	133,453,810	150,896,223	18.83
	Daugherty Township	3,433	13,020	44,697,660	50,539,644	17.74
	Decatur Township	3,004	9,567	28,739,268	32,495,490	17.30
	Decatur Township	2,735	9,911	27,106,585	30,649,416	17.24
	Delaware Township	4,018	11,417	45,873,506	51,869,173	17.76
	Delaware Township	3,527	13,289	46,870,303	52,996,252	17.79
	Delmar Township	3,048	10,951	33,378,648	37,741,237	17.45
	Denver Borough	2,861	13,452	38,486,172	43,516,315	17.59
	Derry Township	18,408	19,594	360,686,352	407,828,058	19.83
	Derry Township	7,650	12,560	96,084,000	108,642,179	18.50
	Derry Borough	2,950	10,368	30,585,600	34,583,138	17.36
	Derry Township	15,446	10,440	161,256,240	182,332,431	19.02
	Devon-Berwyn CDP	5,019	25,349	127,226,631	143,855,152	18.78
	Dickinson Township	3,870	14,239	55,104,930	62,307,144	17.95
	Diskson City Borough	6,276	10,968	68,835,168	77,831,924	18.17
	Dingman Township	4,591	15,022	68,966,002	77,979,858	18.17
	Donora Borough	5,928	8,914	52,842,192	59,748,666	17.91
	Dormont Borough	9,772	13,448	131,413,856	148,589,647	18.82
	Douglass Township	3,570	14,036	50,108,520	56,657,704	17.85
	Douglass Township	7,048	16,636	117,250,528	132,575,172	18.70
	Dover Township	15,668	14,259	223,410,012	252,609,701	19.35
	Dowington Borough	7,749	15,196	117,753,804	133,144,226	18.71
	Doylestown Township	8,575	20,537	176,104,775	199,121,669	19.11
	Doylestown Township	14,510	22,124	321,019,240	362,976,455	19.71
	Drexel Hill CDP	29,744	17,998	535,332,512	605,300,471	20.22
	DuBois City	8,286	11,713	97,053,918	109,738,865	18.51

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	Dunbar Township	7,460	10,051	74,980,460	84,780,406	18.26
	Dunmore Borough	15,403	13,083	201,517,449	227,855,780	19.24
	Dupont Borough	2,984	11,186	33,379,024	37,741,662	17.45
	Duquesne City	8,525	8,404	71,644,100	81,007,984	18.21
	Duryea City	4,869	11,510	56,042,190	63,366,904	17.96
	Eagleville CDP	3,637	14,406	52,394,622	59,242,599	17.90
	Earl Township	3,016	13,807	41,641,912	47,084,510	17.67
	Earl Township	5,515	13,313	73,421,195	83,017,345	18.23
	East Allen Township	4,572	15,548	71,085,456	80,376,325	18.20
	East Bethehem Township	2,799	8,867	24,818,733	28,062,541	17.15
	East Bradford Township	6,440	12,297	79,192,680	89,543,163	18.31
	East Brandywine Township	5,179	19,576	101,384,104	114,635,006	18.56
	East Buffalo Township	5,245	18,668	97,913,660	110,710,975	18.52
	East Cain Township	2,619	22,338	58,503,222	66,149,593	18.01
	East Cocalico Township	7,809	14,124	110,294,316	124,709,783	18.64
	East Coventry Township	4,450	17,079	76,001,550	85,934,953	18.27
	East Donegal Township	4,484	14,183	63,596,572	71,908,644	18.09
	East Drumore Township	3,225	12,576	40,557,600	45,858,478	17.64
	East Earl Township	5,941	12,073	71,725,693	81,100,241	18.21
	East Fallowfield Township	4,433	16,474	73,029,242	82,574,164	18.23
	East Franklin Township	3,923	11,712	45,946,176	51,951,341	17.77
	East Groshen Township	15,138	25,260	382,385,880	432,363,715	19.88
	East Greenville Township	3,117	12,573	39,190,041	44,312,179	17.61
	East Hanover Township	4,569	15,349	70,129,581	79,295,517	18.19
	East Hanover Township	3,058	12,073	36,919,234	41,744,578	17.55
	East Hempfield Township	18,597	20,282	377,184,354	426,482,349	19.87
	East Huntingdon Township	7,708	10,476	80,749,008	91,302,903	18.33
	East Lampeter Township	11,999	16,904	202,831,096	229,341,120	19.25
	East Landsowne Borough	2,691	13,876	37,340,316	42,220,695	17.56
	East Manchester Township	3,714	14,549	54,034,986	61,097,359	17.93
	East Marlborough Township	4,781	26,695	127,628,795	144,309,879	18.79
	East McKeesport Borough	2,678	11,379	30,472,962	34,455,778	17.36
	East Norriton Township	13,324	18,980	252,889,520	285,942,180	19.47
	East Norriton CDP	13,324	18,980	252,889,520	285,942,180	19.47
	East Nottingham Township	3,841	13,660	52,468,060	59,325,635	17.90
	Easton City	26,276	11,319	297,418,044	336,290,582	19.63
	East Pennsboro Township	15,185	14,996	227,714,260	257,476,514	19.37
	East Petersburg Borough	4,197	16,028	67,269,516	76,061,642	18.15
	East Pikeland Borough	5,825	18,898	110,080,850	124,468,417	18.64
	East Rockhill Borough	3,753	16,295	61,155,135	69,148,111	18.05
	East St. Clair Township	2,765	8,481	23,449,965	26,514,875	17.09
	East Stroudsburg Brough	2,781	11,146	30,997,026	35,048,337	17.37
	East Taylor Township	3,073	9,771	30,026,283	33,950,718	17.34
	Easttown Township	9,570	38,348	366,990,360	414,956,000	19.84
	East Uniontown CDP	2,822	8,846	24,963,412	28,226,130	17.16
	East Vincent Township	4,161	14,837	61,736,757	69,805,751	18.06
	East Wheatfield Township	2,735	9,680	26,474,800	29,935,056	17.21
	East Whiteland Township	8,398	21,099	177,189,402	200,348,057	19.12
	East York CDP	8,487	19,412	164,749,644	186,282,422	19.04
	Ebensburg Borough	3,872	13,676	52,953,472	59,874,491	17.91
	Economy Borough	9,519	13,056	124,280,064	140,523,468	18.76
	Edgewood Borough	3,581	20,807	74,509,867	84,248,307	18.25
	Edgewood CDP	2,719	10,441	28,389,079	32,099,532	17.28

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	Edgemont Township	2,735	29,394	80,392,590	90,899,902	18.33
	Edinboro Borough	7,736	6,977	53,974,072	61,028,483	17.93
	Edwardsville Borough	5,399	9,589	51,771,011	58,537,482	17.89
	Elim CDP	3,861	13,703	52,907,283	59,822,265	17.91
	Elizabeth Township	14,712	13,010	191,403,120	216,419,508	19.19
	Elizabeth Township	3,691	15,183	56,040,453	63,364,940	17.96
	Elizabethtown Borough	9,952	13,482	134,172,864	151,709,257	18.84
	Ellwood City Borough	8,894	10,110	89,918,340	101,670,667	18.44
	Emigsville CDP	2,580	14,869	38,362,020	43,375,936	17.59
	Emmaus Borough	11,157	16,211	180,866,127	204,505,330	19.14
	Emporium Borough	2,513	9,464	23,783,032	26,891,474	17.11
	Emsworth Borough	2,892	12,782	36,965,544	41,796,941	17.55
	Enola CDP	5,961	13,103	78,106,983	88,315,566	18.30
	Ephrata Borough	12,133	14,692	178,258,036	201,556,361	19.12
	Ephrata Township	7,116	12,241	87,106,956	98,491,835	18.41
	Etna Borough	4,200	11,780	49,476,000	55,942,513	17.84
	Exeter Township	17,260	17,828	307,711,280	347,929,144	19.67
	Exeter Borough	5,691	10,290	58,560,390	66,214,233	18.01
	Exton CDP	2,550	22,617	57,673,350	65,211,257	17.99
	Fairfield Township	2,580	12,211	31,504,380	35,622,002	17.39
	Fairless Hills CDP	9,026	14,870	134,216,620	151,758,732	18.84
	Fairview Township	7,839	25,442	199,439,838	225,506,625	19.23
	Fairview Township	3,014	21,864	65,898,096	74,510,977	18.13
	Fairview Township	13,258	15,627	207,182,766	234,261,554	19.27
	Fairview -Ferndale CDP	2,895	8,904	25,777,080	29,146,144	17.19
	Fallowfield Township	4,972	12,033	59,828,076	67,647,606	18.03
	Falls Township	34,997	15,443	540,458,671	611,096,619	20.23
	Farrell City	6,841	8,975	61,397,975	69,422,690	18.06
	Fawn Township	2,712	13,135	35,622,120	40,277,931	17.51
	Fayette Township	3,002	10,558	31,695,116	35,837,668	17.39
	Fayeteville CDP	3,003	13,443	40,369,329	45,645,600	17.64
	Feasterville-Trevose CDP	6,696	16,087	107,718,552	121,797,367	18.62
	Ferguson Township	9,368	17,126	160,436,368	181,405,401	19.02
	Fernway CDP	9,072	17,745	160,982,640	182,023,071	19.02
	Findlay Township	4,500	14,506	65,277,000	73,808,704	18.12
	Fleetwood Borough	3,478	16,034	55,766,252	63,054,901	17.96
	Flourtown CDP	4,754	22,037	104,763,898	118,456,539	18.59
	Folcroft Borough	7,506	13,272	99,619,632	112,639,918	18.54
	Folsom CDP	8,173	14,660	119,816,180	135,476,155	18.72
	Ford City Borough	3,413	10,621	36,249,473	40,987,279	17.53
	Forest Hills Borough	7,335	18,739	137,450,565	155,415,354	18.86
	Forks Township	5,923	16,708	98,961,484	111,895,750	18.53
	Fort Washington CDP	3,699	28,730	106,272,270	120,162,056	18.60
	Forty Fort Borough	5,049	13,318	67,242,582	76,031,187	18.15
	Forward Township	3,877	14,680	56,914,360	64,353,067	17.98
	Foster Township	3,372	10,309	34,761,948	39,305,335	17.49
	Foster Township	4,691	12,617	59,186,347	66,922,003	18.02
	Fountain Hill Borough	4,637	14,086	65,316,782	73,853,685	18.12
	Fox Township	3,392	9,939	33,713,088	38,119,389	17.46
	Fox Chapel Borough	5,319	63,063	335,432,097	379,273,072	19.75
	Frackville Borough	4,700	10,699	50,285,300	56,857,589	17.86
	Franconia Township	7,224	16,502	119,210,448	134,791,254	18.72
	Franklin Township	4,126	11,668	48,142,168	54,434,349	17.81

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	Franklin Township	3,821	10,699	40,880,879	46,224,010	17.65
	Franklin Township	3,706	11,581	42,919,186	48,528,724	17.70
	Franklin Township	2,779	20,685	57,483,615	64,996,723	17.99
	Franklin Township	2,640	9,853	26,011,920	29,411,678	17.20
	Franklin Township	5,562	14,325	79,675,650	90,089,257	18.32
	Franklin City	7,329	11,501	84,290,829	95,307,640	18.37
	Franklin Township	3,852	14,060	54,159,120	61,237,717	17.93
	Franklin Park Borough	10,109	24,439	247,053,851	279,343,789	19.45
	Frankstown Township	7,243	17,708	128,259,044	145,022,501	18.79
	Freedom Township	2,959	9,267	27,421,053	31,004,985	17.25
	Freeland Borough	3,909	10,306	40,286,154	45,551,554	17.63
	Fullerton CDP	13,127	15,986	209,848,222	237,275,385	19.28
	Fulton Township	2,688	10,703	28,769,664	32,529,859	17.30
	Garden View CDP	2,687	13,123	35,261,501	39,870,179	17.50
	Gastonville CDP	3,090	12,821	39,616,890	44,794,818	17.62
	Geistown Borough	2,749	12,628	34,714,372	39,251,540	17.49
	Georges Township	6,525	7,915	51,645,375	58,395,426	17.88
	German Township	5,596	8,727	48,836,292	55,219,195	17.83
	Gettysburg Borough	7,025	11,342	79,677,550	90,091,406	18.32
	Gilbertsville CDP	3,994	16,875	67,398,750	76,207,767	18.15
	Gilpin Township	2,804	13,130	36,816,520	41,628,439	17.54
	Girard Borough	2,879	11,111	31,988,569	36,169,475	17.40
	Girard Township	4,722	10,911	51,521,742	58,255,634	17.88
	Glassport Borough	5,582	9,766	54,513,812	61,638,767	17.94
	Glenolden Borough	7,260	14,201	103,099,260	116,574,333	18.57
	Glenside CDP	8,704	16,349	142,301,696	160,900,528	18.90
	Grantley CDP	3,069	24,793	76,089,717	86,034,643	18.27
	Granville Township	5,090	10,606	53,984,540	61,040,319	17.93
	Green Township	4,095	8,380	34,316,100	38,801,214	17.47
	Greencastle Borough	3,600	14,385	51,786,000	58,554,430	17.89
	Greene Township	2,573	10,450	26,887,850	30,402,092	17.23
	Greene Township	4,959	12,163	60,316,317	68,199,660	18.04
	Greene Township	11,930	15,416	183,912,880	207,950,293	19.15
	Greenfield Township	3,802	9,314	35,411,828	40,040,154	17.51
	Greensburg City	16,318	12,167	198,541,106	224,490,429	19.23
	Green Tree Borough	4,905	18,439	90,443,295	102,264,234	18.44
	Greenville Borough	6,734	10,707	72,100,938	81,524,531	18.22
	Greenwich Township	2,977	14,844	44,190,588	49,966,298	17.73
	Grove City Borough	8,240	10,342	85,218,080	96,356,083	18.38
	Guilford Township	11,893	13,587	161,590,191	182,710,029	19.02
	Halifax Township	3,449	12,946	44,650,754	50,486,608	17.74
	Hamburg Borough	3,897	13,697	53,377,209	60,353,610	17.92
	Hamilton Township	7,745	12,813	99,236,685	112,206,920	18.54
	Hamilton Township	6,681	13,306	88,897,386	100,516,274	18.43
	Hampden Township	20,384	20,380	415,425,920	469,722,088	19.97
	Hampton Township	15,568	19,940	310,425,920	350,998,588	19.68
	Hampton Township	15,568	19,940	310,425,920	350,998,588	19.68
	Hanover Township	3,470	12,541	43,517,270	49,204,977	17.71
	Hanover Township	12,050	10,892	131,248,600	148,402,792	18.82
	Hanover Township	7,176	24,183	173,537,208	196,218,521	19.09
	Hanover Township	2,883	12,212	35,207,196	39,808,777	17.50
	Hanover Borough	14,399	13,856	199,512,544	225,588,834	19.23
	Harborcreek Township	15,108	12,009	181,431,972	205,145,131	19.14

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	Harleysville CDP	7,405	16,603	122,945,215	139,014,155	18.75
	Harmar Township	3,144	16,027	50,388,888	56,974,716	17.86
	Harmony Township	3,694	12,945	47,818,830	54,068,751	17.81
	Harmony Township CDP	3,694	45,945	169,720,830	191,903,342	19.07
	Harris Township	4,167	18,787	78,285,429	88,517,335	18.30
	Harrison Township	11,763	12,101	142,344,063	160,948,432	18.90
	Harrison Township CDP	11,763	12,101	142,344,063	160,948,432	18.90
	Harveys Lake Borough	2,746	12,471	34,245,366	38,721,235	17.47
	Hatboro Borough	7,382	16,681	123,139,142	139,233,428	18.75
	Hatfield Borough	2,650	15,591	41,316,150	46,716,171	17.66
	Hatfield Township	15,357	17,149	263,357,193	297,777,978	19.51
	Haverford Township	49,848	20,566	1,025,173,968	1,159,164,206	20.87
	Hayfield Township	2,937	11,699	34,359,963	38,850,810	17.48
	Hazle Township	9,323	10,845	101,107,935	114,322,742	18.55
	Hazleton City	24,730	11,512	284,691,760	321,900,973	19.59
	Hegins Township	3,561	11,667	41,546,187	46,976,274	17.67
	Heidelberg Township	3,797	13,054	49,566,038	56,044,319	17.84
	Heidelberg Township	3,250	12,828	41,691,000	47,140,014	17.67
	Heidelberg Township	2,622	14,433	37,843,326	42,789,449	17.57
	Hellam Township	5,123	15,477	79,288,671	89,651,700	18.31
	Hellertown Township	5,662	14,662	83,016,244	93,866,467	18.36
	Hempfield Township	3,826	16,529	63,239,954	71,505,416	18.09
	Hempfield Township	42,609	13,359	569,213,631	643,609,853	20.28
	Hepburn Township	2,834	11,569	32,786,546	37,071,748	17.43
	Hereford Township	3,026	13,714	41,498,564	46,922,426	17.66
	Hermitage City	15,300	13,334	204,010,200	230,674,333	19.26
	Hershey CDP	11,860	18,307	217,121,020	245,498,737	19.32
	Highspire Borough	2,668	13,245	35,337,660	39,956,292	17.50
	Hilltown Township	10,582	17,091	180,856,962	204,494,967	19.14
	Hokendauqua CDP	3,413	14,130	48,225,690	54,528,788	17.81
	Hollidaysburg Borough	5,624	13,640	76,711,360	86,737,535	18.28
	Homeacre-Lyndora CDP	7,511	14,954	112,319,494	126,999,652	18.66
	Homestead Borough	4,179	7,564	31,609,956	35,741,377	17.39
	Honesdale Borough	4,972	12,555	62,423,460	70,582,206	18.07
	Honey Brook Township	5,449	13,035	71,027,715	80,311,037	18.20
	Hopewell Township	13,274	13,091	173,769,934	196,481,664	19.10
	Hopewell Township	3,177	16,660	52,928,820	59,846,617	17.91
	Horsham CDP	15,051	18,475	278,067,225	314,410,611	19.57
	Horsham Township	21,896	19,592	428,986,432	485,054,959	20.00
	Hummelstown Borough	3,981	14,475	57,624,975	65,156,559	17.99
	Huntingdon Borough	6,843	10,444	71,468,292	80,809,198	18.21
	Imperial-Enlow CDP	3,449	12,302	42,429,598	47,975,146	17.69
	Independence Township	2,563	12,192	31,248,096	35,332,222	17.38
	Indiana Township	6,024	15,795	95,149,080	107,585,065	18.49
	Indiana Borough	15,174	8,627	130,906,098	148,015,525	18.81
	Ingram Borough	3,901	12,358	48,208,558	54,509,417	17.81
	Irwin Borough	4,604	11,967	55,096,068	62,297,124	17.95
	Jackson Township	3,078	15,215	46,831,770	52,952,682	17.78
	Jackson Township	5,213	10,696	55,758,248	63,045,851	17.96
	Jackson Township	5,732	12,638	72,441,016	81,909,057	18.22
	Jackson Township	5,336	12,511	66,758,696	75,484,058	18.14
	Jackson Township	3,757	14,141	53,127,737	60,071,532	17.91
	Jackson Township	6,244	13,947	87,085,068	98,467,086	18.41

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	Jeannette City	11,221	10,315	115,744,615	130,872,436	18.69
	Jefferson Borough	9,533	15,614	148,848,262	168,302,730	18.94
	Jefferson Township	4,812	12,420	59,765,040	67,576,331	18.03
	Jefferson Township	2,536	11,084	28,109,024	31,782,873	17.27
	Jefferson Township	3,438	12,785	43,954,830	49,699,726	17.72
	Jenkins Township	4,740	11,547	54,732,780	61,886,354	17.94
	Jenkintown Borough	4,574	22,141	101,272,934	114,509,306	18.56
	Jenner Township	4,147	10,673	44,260,931	50,045,835	17.73
	Jersey Shore Borough	4,353	10,308	44,870,724	50,735,328	17.74
	Jessup Borough	4,605	11,247	51,792,435	58,561,706	17.89
	Jim Thorpe Borough	5,048	12,806	64,644,688	73,093,749	18.11
	Johnsonburg Borough	3,350	10,247	34,327,450	38,814,048	17.47
	Johnstown City	28,134	8,500	239,139,000	270,394,467	19.42
	Kane Borough	4,590	10,929	50,164,110	56,720,559	17.85
	Keating Township	3,070	9,742	29,907,940	33,816,908	17.34
	Kelly Township	4,561	8,864	40,428,704	45,712,736	17.64
	Kenhorst Borough	2,918	14,345	41,858,710	47,329,643	17.67
	Kennedy Township	7,265	14,522	105,502,330	119,291,485	18.60
	Kennedy Township CDP	7,152	14,565	104,168,880	117,783,753	18.58
	Kennett Township	4,624	28,432	131,469,568	148,652,641	18.82
	Kennet Square Borough	5,218	15,147	79,037,046	89,367,188	18.31
	King of Prussia CDP	18,406	22,821	420,043,326	474,942,989	19.98
	Kingston Borough	14,507	15,356	222,769,492	251,885,465	19.34
	Kingston Township	6,763	16,069	108,674,647	122,878,423	18.63
	Kiskiminetas Township	5,456	10,738	58,586,528	66,243,787	18.01
	Kitanning Borough	5,120	9,248	47,349,760	53,538,374	17.80
	Kulpmont Borough	3,233	9,806	31,702,798	35,846,354	17.39
	Kulpsville Borough	5,183	18,128	93,957,424	106,237,659	18.48
	Kutztown Borough	4,704	12,222	57,492,288	65,006,530	17.99
	Lackawannock Township	2,677	9,669	25,883,913	29,266,940	17.19
	Lackawaxen Township	2,832	10,778	30,523,296	34,512,691	17.36
	Lake Township	3,287	11,003	36,166,861	40,893,870	17.53
	Lake City Borough	2,519	11,099	27,958,381	31,612,541	17.27
	Lancaster Township	13,187	18,645	245,871,615	278,007,035	19.44
	Lansdale Borough	16,362	16,390	268,173,180	303,223,415	19.53
	Landsdowne Borough	11,712	17,626	206,435,712	233,416,860	19.27
	Lansford Borough	4,583	9,916	45,445,028	51,384,693	17.75
	Larksville Borough	4,700	11,116	52,245,200	59,073,648	17.89
	Latrobe Borough	9,265	12,702	117,684,030	133,065,333	18.71
	Laureldale Borough	3,726	14,936	55,651,536	62,925,192	17.96
	Lawnton CDP	3,221	15,395	49,587,295	56,068,354	17.84
	Lawrence Township	8,000	11,344	90,752,000	102,613,286	18.45
	Lawrence Park Township	4,310	12,964	55,874,840	63,177,682	17.96
	Lawrence Park CDP	4,310	12,964	55,874,840	63,177,682	17.96
	Leacock Township	4,668	10,916	50,955,888	57,615,823	17.87
	Leacock-Leola Bareville CDP	5,685	13,869	78,845,265	89,150,341	18.31
	Lebanon City	24,800	11,203	277,834,400	314,147,356	19.57
	Leechburg Borough	2,504	12,065	30,210,760	34,159,306	17.35
	Lehigh Township	9,296	14,529	135,061,584	152,714,133	18.84
	Lehighton Borough	5,914	11,403	67,437,342	76,251,403	18.15
	Lehman Township	3,076	13,720	42,202,720	47,718,616	17.68
	Lehman Township	3,055	13,478	41,175,290	46,556,900	17.66
	Lemoyne Borough	3,959	17,889	70,822,551	80,079,058	18.20

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	Lewisburg Borough	5,785	10,406	60,198,710	68,066,681	18.04
	Lewistown Borough	9,341	10,043	93,811,663	106,072,847	18.48
	Liberty Borough	2,744	11,234	30,826,096	34,855,067	17.37
	Ligonier Township	6,979	15,351	107,134,629	121,137,125	18.61
	Lima CDP	2,670	18,584	49,619,280	56,104,520	17.84
	Limerick Township	6,691	17,274	115,580,334	130,686,684	18.69
	Linglestown CDP	5,862	15,736	92,244,432	104,300,779	18.46
	Linwood CDP	3,425	11,711	40,110,175	45,352,575	17.63
	Lionville-Marchwood CDP	6,468	20,068	129,799,824	146,764,661	18.80
	Litizt Borough	8,280	14,938	123,686,640	139,852,484	18.76
	Little Britain Township	2,701	12,306	33,238,506	37,582,779	17.44
	Littlestown Borough	2,974	11,579	34,435,946	38,936,724	17.48
	Lock Haven City	9,230	9,271	85,571,330	96,755,503	18.39
	Logan Township	12,381	11,677	144,572,937	163,468,620	18.91
	London Britain Township	2,671	23,857	63,722,047	72,050,519	18.09
	Londonberry Township	4,926	13,013	64,102,038	72,480,174	18.10
	London Grove Township	3,922	15,737	61,720,514	69,787,385	18.06
	Longswamp Township	5,387	13,727	73,947,349	83,612,268	18.24
	Lorane CDP	2,580	14,717	37,969,860	42,932,521	17.58
	Lower Allen CDP	6,329	20,313	128,560,977	145,363,897	18.79
	Lower Allen Township	15,254	18,304	279,209,216	315,701,861	19.57
	Lower Alsace Township	4,627	16,563	76,637,001	86,653,457	18.28
	Lower Burrell City	12,251	12,587	154,203,337	174,357,713	18.98
	Lower Chichester Township	3,660	11,665	42,693,900	48,273,993	17.69
	Lower Frederick Township	3,696	16,530	61,094,880	69,079,981	18.05
	Lower Gwynedd Township	9,958	31,753	316,196,374	357,523,240	19.69
	Lower Macungie Township	16,871	21,682	365,797,022	413,606,693	19.84
	Lower Makefield Township	25,083	28,853	723,719,799	818,309,977	20.52
	Lower Millford Township	3,269	16,345	53,431,805	60,415,342	17.92
	Lower Moreland Township	11,768	29,971	352,698,728	398,796,452	19.80
	Lower Mount Bethel Township	3,187	15,630	49,812,810	56,323,344	17.85
	Lower Nazareth Township	4,483	16,466	73,817,078	83,464,970	18.24
	Lower Oxford Township	3,264	10,056	32,822,784	37,112,722	17.43
	Lower Paxton Township	39,162	18,522	725,358,564	820,162,928	20.53
	Lower Pottsgrove Township	8,808	16,206	142,742,448	161,398,886	18.90
	Lower Providence Township	19,351	17,513	338,894,063	383,187,517	19.76
	Lower Salford Township	10,735	17,355	186,305,925	210,656,109	19.17
	Lower Saucon Township	8,448	19,317	163,190,016	184,518,951	19.03
	Lower Southhampton Township	19,860	17,599	349,516,140	395,197,899	19.79
	Lower Swatara Township	7,072	14,375	101,660,000	114,946,962	18.56
	Lower Towamensing Township	2,948	11,657	34,364,836	38,856,320	17.48
	Lower Windsor Township	7,051	12,838	90,520,738	102,351,798	18.44
	Lower Yoder Township	3,342	10,854	36,274,068	41,015,089	17.53
	Loyalsock Township	10,644	16,617	176,871,348	199,988,433	19.11
	Luzwene Township	4,904	9,163	44,935,352	50,808,403	17.74
	Luzerne Borough	3,206	10,644	34,124,664	38,584,758	17.47
	Lynn Township	3,220	14,370	46,271,400	52,319,072	17.77
	Lynnwood-Pricedale CDP	2,664	11,181	29,786,184	33,679,238	17.33
	McCandless Township	28,781	21,254	611,711,374	691,662,051	20.35
	McCandless Township CDP	28,781	21,254	611,711,374	691,662,051	20.35
	McChesneytown-Loyalhanna CDP	3,708	11,162	41,388,696	46,798,199	17.66
	McGovern CDP	2,504	15,784	39,523,136	44,688,810	17.62
	McKean Township	4,503	13,497	60,776,991	68,720,544	18.05

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	McKeesport City	26,016	9,024	234,768,384	265,452,612	19.40
	McKees Rocks Borough	7,691	8,701	66,919,391	75,665,755	18.14
	McMurray CDP	4,082	24,238	98,939,516	111,870,911	18.53
	McSherrystown Borough	2,769	12,152	33,648,888	38,046,798	17.45
	Macungie Borough	2,597	16,874	43,821,778	49,549,284	17.72
	Mahoney City Borough	5,209	8,863	46,167,367	52,201,442	17.77
	Mahoning Township	4,198	11,499	48,272,802	54,582,057	17.82
	Mahoning Township	3,560	10,127	36,052,120	40,764,132	17.52
	Mahoning Township	4,134	19,361	80,038,374	90,499,389	18.32
	Maidencreek Township	3,397	13,882	47,157,154	53,320,594	17.79
	Malvern Borough	2,944	18,709	55,079,296	62,278,160	17.95
	Manchester Township	7,517	17,280	129,893,760	146,870,874	18.81
	Manheim Borough	5,011	13,360	66,946,960	75,696,928	18.14
	Manheim Township	28,880	19,703	569,022,640	643,393,899	20.28
	Manheim Township	2,692	15,023	40,441,916	45,727,674	17.64
	Manor Township	4,482	12,022	53,882,604	60,925,060	17.93
	Manor Township	14,130	15,954	225,430,020	254,893,724	19.36
	Manor Borough	2,627	12,036	31,618,572	35,751,119	17.39
	Mansfield Borough	3,538	7,712	27,285,056	30,851,213	17.24
	Maple Glen CDP	5,881	21,116	124,183,196	140,413,940	18.76
	Marcus Hook Borough	2,546	10,031	25,538,926	28,876,864	17.18
	Marietta Borough	2,778	13,077	36,327,906	41,075,963	17.53
	Marlborough Township	3,116	16,192	50,454,272	57,048,645	17.86
	Marple Township	23,123	20,148	465,882,204	526,773,008	20.08
	Marshall Township	4,010	22,554	90,441,540	102,262,249	18.44
	Martic Township	4,362	12,999	56,701,638	64,112,542	17.98
	Masontown Borough	3,759	9,917	37,278,003	42,150,238	17.56
	Maxatawny Township	5,724	9,977	57,108,348	64,572,409	17.98
	Meadwood CDP	3,011	15,482	46,616,302	52,709,053	17.78
	Meadville City	14,318	10,986	157,297,548	177,856,338	19.00
	Mechanicsburg Borough	9,452	15,312	144,729,024	163,645,107	18.91
	Mechanicsville CDP	2,803	22,579	63,288,937	71,560,801	18.09
	Media Borough	5,957	19,037	113,403,409	128,225,235	18.67
	Menallen Township	2,700	12,408	33,501,600	37,880,259	17.45
	Menallen Township	4,739	9,515	45,091,585	50,985,055	17.75
	Meridian CDP	3,473	14,166	49,198,518	55,628,764	17.83
	Meyersdale Borough	2,518	9,062	22,818,116	25,800,444	17.07
	Middle Paxton Township	5,129	17,160	88,013,640	99,517,023	18.42
	Middlesex Township	5,578	13,812	77,043,336	87,112,900	18.28
	Middlesex Township	5,780	14,358	82,989,240	93,835,934	18.36
	Middle Smithfield Township	6,382	12,983	82,857,506	93,686,982	18.36
	Middletown Township	43,063	17,479	752,698,177	851,075,829	20.56
	Middletown Borough	9,254	13,046	120,727,684	136,506,792	18.73
	Middletown Township	14,130	20,209	285,553,170	322,874,969	19.59
	Meddletown CDP	6,866	14,563	99,989,558	113,058,193	18.54
	Midland Borough	3,321	9,116	30,274,236	34,231,079	17.35
	Mifflinburg Borough	3,480	12,006	41,780,880	47,241,641	17.67
	Milford Township	7,360	15,455	113,748,800	128,615,768	18.67
	Millcreek Township	2,687	12,949	34,793,963	39,341,534	17.49
	Millcreek Township	46,820	16,292	762,791,440	862,488,281	20.58
	Millersburg Borough	2,729	12,987	35,441,523	40,073,730	17.51
	Millersville Borough	8,099	10,258	83,079,542	93,938,038	18.36
	Millvale Borough	4,341	10,302	44,720,982	50,566,014	17.74

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1993 Dollars)	Log of Total Income
Pennsylvania	Milton Borough	6,746	10,844	73,153,624	82,714,803	18.23
	Minersville Borough	4,877	11,852	57,802,204	65,356,952	18.00
	Monaca Borough	6,739	11,197	75,456,583	85,318,758	18.26
	Monessen City	9,901	9,842	97,445,642	110,181,787	18.52
	Monongahela City	4,928	11,347	55,918,016	63,226,501	17.96
	Monroe Township	5,468	16,554	90,517,272	102,347,879	18.44
	Monroe Township	3,881	15,257	59,212,417	66,951,480	18.02
	Montgomery Township	4,558	11,828	53,912,024	60,958,326	17.93
	Montgomery Township	12,179	21,465	261,422,235	295,590,121	19.50
	Montgomeryville CDP	9,114	21,220	193,399,080	218,676,340	19.20
	Montoursville Borough	4,983	12,906	64,310,598	72,715,993	18.10
	Moon Township	19,631	18,134	355,988,554	402,516,258	19.81
	Moore Township	8,418	15,404	129,670,872	146,618,855	18.80
	Moosic Borough	5,339	15,840	84,569,760	95,623,028	18.38
	Morgan Township	2,887	8,499	24,536,613	27,743,548	17.14
	Morris Township	2,680	9,074	24,318,320	27,496,724	17.13
	Morrisville Borough	9,765	15,158	148,017,870	167,363,806	18.94
	Morton Borough	2,851	15,261	43,509,111	49,195,752	17.71
	Mount Carmel Borough	7,196	9,946	71,571,416	80,925,800	18.21
	Mount Carmel Township	2,679	9,437	25,281,723	28,586,044	17.17
	Mount Joy Township	2,848	13,941	39,703,968	44,893,277	17.62
	Mount Joy Borough	6,398	14,221	90,985,958	102,877,823	18.45
	Mount Joy Township	6,227	14,628	91,088,556	102,993,830	18.45
	Mount Lebanon Township	33,362	26,355	879,255,510	994,174,205	20.72
	Mount Lebanon CDP	33,362	26,355	879,255,510	994,174,205	20.72
	Mount Oliver Borough	4,160	9,898	41,175,680	46,557,341	17.66
	Mount Penn Borough	2,883	13,869	39,984,327	45,210,279	17.63
	Mount Pleasant Township	4,076	12,671	51,646,996	58,397,258	17.88
	Mount Pleasant Township	3,555	12,842	45,653,310	51,620,198	17.76
	Mount Pleasant Borough	4,787	10,552	50,512,424	57,114,398	17.86
	Mount Pleasant Township	11,341	11,186	126,860,426	143,441,084	18.78
	Mount Union borough	2,878	10,474	30,144,172	34,084,015	17.34
	Muhlenberg Township	12,636	15,366	194,164,776	219,542,112	19.21
	Muncy Borough	1,702	12,784	21,758,368	24,602,187	17.02
	Muncy Creek Township	3,401	11,157	37,944,957	42,904,363	17.57
	Munhall Borough	13,158	11,635	153,093,330	173,102,628	18.97
	Municipality of Monroeville Borough	29,169	17,753	517,837,257	585,518,586	20.19
	Municipality of Murrysville Borough	17,240	20,991	361,884,840	409,183,189	19.83
	Myerstown Borough	3,236	11,198	36,236,728	40,972,868	17.53
	Nanticoke City	12,267	10,815	132,667,605	150,007,261	18.83
	Nanty-Glo Borough	3,190	9,400	29,986,000	33,905,170	17.34
	Narbeth Borough	4,278	24,124	103,202,472	116,691,035	18.58
	Nazareth Borough	5,713	14,694	83,946,822	94,918,672	18.37
	Neshannock Township	8,373	18,897	158,224,581	178,904,534	19.00
	Nesquehoning Borough	3,364	11,102	37,347,128	42,228,398	17.56
	Nether Providence Township	13,229	23,280	307,971,120	348,222,945	19.67
	Nether Providence Township CDP	13,229	23,280	307,971,120	348,222,945	19.67
	Neberry Township	12,003	13,512	162,184,536	183,382,055	19.03
	New Brighton Borough	6,854	9,429	64,626,366	73,073,032	18.11
	New Britain Township	9,099	21,103	192,016,197	217,112,714	19.20
	New Castle City	28,334	9,298	263,449,532	297,882,386	19.51
	New Cumberland Borough	7,665	17,590	134,827,350	152,449,285	18.84
	New Freedom Borough	2,920	16,189	47,271,880	53,450,315	17.79

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	New Garden Borough	5,430	15,508	84,208,440	95,214,483	18.37
	New Hanover Township	5,956	16,651	99,173,356	112,135,314	18.54
	New Holland Borough	4,484	16,085	72,125,140	81,551,896	18.22
	New Kensington City	15,894	12,105	192,396,870	217,543,141	19.20
	New London Township	2,721	17,782	48,384,822	54,708,718	17.82
	Newport Township	4,593	10,093	46,357,149	52,416,028	17.77
	New Sewickley Township	6,861	10,787	74,009,607	83,682,663	18.24
	Newton Township	2,843	13,632	38,755,776	43,821,156	17.60
	Newton Borough	2,565	21,132	54,203,580	61,287,988	17.93
	Newton Township	13,685	23,768	325,265,080	367,777,226	19.72
	Newton Township	11,366	26,630	302,676,580	342,236,409	19.65
	New Wilmington Borough	2,706	8,869	23,999,514	27,136,250	17.12
	Nockamixon Township	3,329	17,993	59,898,697	67,727,457	18.03
	Norristown borough	30,749	13,527	415,941,723	470,305,306	19.97
	Northampton township	35,406	22,373	792,138,438	895,670,932	20.61
	Northampton borough	8,717	12,268	106,940,156	120,917,234	18.61
	North Beaver township	3,982	12,091	48,146,362	54,439,092	17.81
	North Braddock borough	7,036	10,270	72,259,720	81,704,065	18.22
	North Buffalo township	2,897	10,833	31,383,201	35,484,985	17.38
	North Catasauqua borough	2,867	13,773	39,487,191	44,648,167	17.61
	North Codorus township	7,565	14,055	106,326,075	120,222,893	18.60
	North Cornwall township	4,886	17,037	83,242,782	94,122,614	18.36
	North Coventry township	7,506	19,224	144,295,344	163,154,745	18.91
	North East borough	4,617	10,576	48,829,392	55,211,394	17.83
	North East township	6,283	12,657	79,523,931	89,917,709	18.31
	North Fayette township	9,537	15,323	146,135,451	165,235,354	18.92
	North Franklin township	4,997	13,279	66,355,163	75,027,783	18.13
	North Huntingdon township	28,158	13,405	377,457,990	426,791,749	19.87
	North Lebanon township	9,741	12,515	121,908,615	137,842,071	18.74
	North Londonderry township	5,630	16,673	93,868,990	106,137,667	18.48
	North Manhein township	3,404	11,474	39,057,496	44,162,311	17.60
	North Middleton township	9,833	15,062	148,104,646	167,461,923	18.94
	North Sewickley township	6,178	11,371	70,250,038	79,431,718	18.19
	North Strabane township	8,157	15,825	129,084,525	145,955,872	18.80
	Northumberland borough	3,860	12,792	49,377,120	55,830,710	17.84
	North Union township	13,910	9,414	130,948,740	148,063,740	18.81
	North Versailles township	12,302	12,118	149,075,636	168,559,822	18.94
	North VersaillesCDP	12,302	12,118	149,075,636	168,559,822	18.94
	North Wales borough	3,802	16,294	61,949,788	70,046,625	18.06
	Northwest Harborcreek CDP	6,662	11,863	79,031,306	89,360,698	18.31
	North Whitehall township	10,827	16,299	176,469,273	199,533,807	19.11
	Norwood borough	6,162	14,831	91,388,622	103,333,115	18.45
	Oakland township	2,820	10,532	29,700,240	33,582,061	17.33
	Oakmont borough	6,961	18,018	125,423,298	141,816,123	18.77
	Oakwood CDP	2,541	11,687	29,696,667	33,578,021	17.33
	O'Hara township	9,096	25,159	228,846,264	258,756,471	19.37
	O'Hara Township CDP	9,096	25,159	228,846,264	258,756,471	19.37
	Ohioville borough	3,865	10,898	42,120,770	47,625,955	17.68
	Oil City city	11,949	10,658	127,352,442	143,997,406	18.79
	Old Forge borough	8,834	11,691	103,278,294	116,776,767	18.58
	Old Lycoming township	5,526	13,217	73,037,142	82,583,096	18.23
	Old Orchard CDP	2,598	24,208	62,892,384	71,112,419	18.08
	Oley township	3,362	15,729	52,880,898	59,792,431	17.91

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	Oliver CDP	3,271	9,327	30,508,617	34,496,093	17.36
	Olyphant borough	5,222	10,923	57,039,906	64,495,022	17.98
	Oreland CDP	5,695	16,766	95,482,370	107,961,916	18.50
	Orwigsburg borough	2,780	13,900	38,642,000	43,692,509	17.59
	Oxford township	3,437	12,490	42,928,130	48,538,837	17.70
	Oxford borough	3,769	10,954	41,285,626	46,681,657	17.66
	Paint township	3,491	10,385	36,254,035	40,992,437	17.53
	Palmer township	14,965	17,348	259,612,820	293,544,216	19.50
	Palmer Heights CDP	3,960	15,317	60,655,320	68,582,970	18.04
	Palmerton borough	5,394	11,636	62,764,584	70,967,915	18.08
	Palmyra borough	6,910	14,082	97,306,620	110,024,595	18.52
	Paoli CDP	5,603	23,862	133,698,786	151,173,217	18.83
	Paradise township	4,430	11,701	51,835,430	58,610,321	17.89
	Paradise township	3,180	12,730	40,481,400	45,772,319	17.64
	Parkesburg borough	2,981	13,230	39,438,630	44,593,259	17.61
	Park Forest Village CDP	6,703	20,084	134,623,052	152,218,285	18.84
	Parks township	2,739	9,683	26,521,737	29,988,128	17.22
	Parkville CDP	6,014	12,885	77,490,390	87,618,384	18.29
	Patterson township	3,074	15,537	47,760,738	54,003,066	17.80
	Patterson Township CDP	3,074	15,537	47,760,738	54,003,066	17.80
	Patton township	9,971	16,696	166,475,816	188,234,205	19.05
	Paxtonia CDP	4,862	16,676	81,078,712	91,675,700	18.33
	Peach Bottom township	3,444	12,515	43,101,660	48,735,047	17.70
	Pen Argyl borough	3,492	13,088	45,703,296	51,676,717	17.76
	Penbrook borough	2,791	12,831	35,811,321	40,491,861	17.52
	Penn township	5,080	15,708	79,796,640	90,226,061	18.32
	Penn township	6,760	13,646	92,246,960	104,303,638	18.46
	Penn township	3,283	12,409	40,738,747	46,063,301	17.65
	Penn township	3,208	9,094	29,173,552	32,986,535	17.31
	Penn township	15,945	13,570	216,373,650	244,653,686	19.32
	Penn township	11,658	14,693	171,290,994	193,678,727	19.08
	Penndel borough	2,703	13,296	35,939,088	40,636,327	17.52
	Penn Forest township	2,895	13,797	39,942,315	45,162,776	17.63
	Pennsbury township	3,326	32,026	106,518,476	120,440,441	18.61
	Penn Wynne CDP	5,807	29,826	173,199,582	195,836,767	19.09
	Pequea township	4,512	15,529	70,066,848	79,224,585	18.19
	Perkasie borough	7,878	18,102	142,607,556	161,246,364	18.90
	Perkiomen township	3,200	16,693	53,417,600	60,399,280	17.92
	Perry township	2,516	13,065	32,871,540	37,167,850	17.43
	Perry township	2,817	9,898	27,882,666	31,526,930	17.27
	Peters township	4,090	15,139	61,918,510	70,011,259	18.06
	Peters township	14,467	24,417	353,240,739	399,409,304	19.81
	Philipsburg borough	3,048	10,908	33,247,584	37,593,043	17.44
	Phoenixville borough	15,066	15,138	228,069,108	257,877,740	19.37
	Pine township	4,048	20,064	81,219,072	91,834,405	18.34
	Pine township	4,193	12,027	50,429,211	57,020,309	17.86
	Pine Creek township	3,188	12,981	41,383,428	46,792,242	17.66
	Pine Grove township	3,699	10,981	40,618,719	45,927,586	17.64
	Pine Grove township	2,756	14,714	40,551,784	45,851,902	17.64
	Pitcairn borough	4,087	10,539	43,072,893	48,702,520	17.70
	Pittston city	9,389	9,840	92,387,760	104,462,840	18.46
	Pittston township	2,725	11,167	30,430,075	34,407,286	17.35
	Plainfield township	5,444	13,136	71,512,384	80,859,053	18.21

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	Plains CDP	4,694	10,979	51,535,426	58,271,106	17.88
	Plains township	10,988	11,602	127,482,776	144,144,775	18.79
	Pleasant township	2,663	14,707	39,164,741	44,283,573	17.61
	Pleasant Hills borough	8,884	18,760	166,663,840	188,446,804	19.05
	Plum borough	25,609	14,413	369,102,517	417,344,216	19.85
	Plumstead township	6,289	18,907	118,906,123	134,447,153	18.72
	Plymouth borough	7,134	9,570	68,272,380	77,195,580	18.16
	Plymouth township	15,958	20,494	327,043,252	369,787,805	19.73
	Plymouth Meeting CDP	6,241	22,961	143,299,601	162,028,859	18.90
	Pocono township	7,529	14,300	107,664,700	121,736,476	18.62
	Pocopson township	3,266	20,690	67,573,540	76,405,402	18.15
	Point township	3,466	12,775	44,278,150	50,065,304	17.73
	Polk township	4,517	12,572	56,787,724	64,209,880	17.98
	Portage borough	3,105	9,446	29,329,830	33,163,239	17.32
	Portage township	4,089	9,340	38,191,260	43,182,858	17.58
	Porter township	2,560	13,605	34,828,800	39,380,924	17.49
	Port Vue borough	4,641	10,808	50,159,928	56,715,831	17.85
	Potter township	3,020	12,760	38,535,200	43,571,751	17.59
	Pottsgrove CDP	3,122	19,724	61,578,328	69,626,615	18.06
	Pottstown borough	21,831	13,291	290,155,821	328,079,187	19.61
	Pottsville city	16,603	11,523	191,316,369	216,321,418	19.19
	Progress CDP	9,654	16,964	163,770,456	185,175,255	19.04
	Prospect Park borough	6,764	13,922	94,168,408	106,476,219	18.48
	Providence township	6,071	11,939	72,481,669	81,955,023	18.22
	Pulaski township	3,469	9,743	33,798,467	38,215,927	17.46
	Punxsutawney borough	6,782	10,774	73,069,268	82,619,421	18.23
	Pymatuning township	3,736	9,661	36,093,496	40,810,916	17.52
	Quakertown borough	8,982	14,558	130,759,956	147,850,282	18.81
	Quincy township	5,704	9,361	53,395,144	60,373,889	17.92
	Racoon township	3,426	11,170	38,268,420	43,270,102	17.58
	Radnor township	28,703	28,516	818,494,748	925,472,012	20.65
	Radnor Township CDP	28,705	28,408	815,451,640	922,031,169	20.64
	Ralpho township	3,625	13,726	49,756,750	56,259,957	17.85
	Rankin borough	2,503	6,805	17,032,915	19,259,117	16.77
	Rapho township	8,211	14,192	116,530,512	131,761,050	18.70
	Rayne township	3,339	9,959	33,253,101	37,599,281	17.44
	Reading township	3,828	11,984	45,874,752	51,870,582	17.76
	Reamstown CDP	2,649	12,672	33,568,128	37,955,482	17.45
	Red Lion borough	6,130	12,776	78,316,880	88,552,896	18.30
	Redstone township	6,459	9,538	61,605,942	69,657,839	18.06
	Reiffton CDP	2,522	24,993	63,032,346	71,270,674	18.08
	Reserve township	3,866	13,565	52,442,290	59,296,497	17.90
	Reserve Township CDP	3,866	13,565	52,442,290	59,296,497	17.90
	Reynoldsville borough	2,818	12,556	35,382,808	40,007,341	17.50
	Richboro CDP	5,332	20,516	109,391,312	123,688,756	18.63
	Richland township	8,600	18,078	155,470,800	175,790,834	18.98
	Richland township	8,560	14,388	123,161,280	139,258,459	18.75
	Richland township	12,777	12,687	162,101,799	183,288,504	19.03
	Richmond township	3,439	13,282	45,676,798	51,646,755	17.76
	Ridgeway borough	4,793	11,354	54,419,722	61,532,380	17.94
	Ridgway township	2,617	9,852	25;782,684	29,152,481	17.19
	Ridley township	31,169	14,641	456,345,329	515,989,664	20.06
	Ridley Park borough	7,592	16,454	124,918,768	141,245,651	18.77

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	Roaring Spring borough	2,615	12,048	31,505,520	35,623,291	17.39
	Robeson township	5,972	16,830	100,508,760	113,645,255	18.55
	Robinson township	10,830	17,750	192,232,500	217,357,288	19.20
	Robinson Township CDP	10,830	17,750	192,232,500	217,357,288	19.20
	Rochester borough	4,156	9,294	38,625,864	43,674,264	17.59
	Rochester township	3,247	11,113	36,083,911	40,800,078	17.52
	Rockland township	2,675	15,741	42,107,175	47,610,583	17.68
	Rockledge borough	2,679	14,428	38,652,612	43,704,508	17.59
	Ross township	33,482	17,810	596,314,420	674,252,715	20.33
	Ross township	2,634	10,249	26,995,866	30,524,226	17.23
	Ross township	3,696	12,972	47,944,512	54,210,860	17.81
	Ross Township CDP	33,482	17,810	596,314,420	674,252,715	20.33
	Rostraver township	11,224	11,587	130,052,488	147,050,348	18.81
	Royersford borough	4,458	13,798	61,511,484	69,551,035	18.06
	Ruscombmanor township	3,129	14,677	45,924,333	51,926,643	17.77
	Rush township	3,411	10,142	34,594,362	39,115,845	17.48
	Rush township	3,472	13,326	46,267,872	52,315,083	17.77
	Rutherford CDP	3,481	14,871	51,765,951	58,531,761	17.89
	Sadsbury township	2,510	14,452	36,274,520	41,015,600	17.53
	Sadsbury township	2,575	14,146	36,425,950	41,186,822	17.53
	Sadsbury township	2,712	11,626	31,529,712	35,650,645	17.39
	St. Clair borough	3,524	9,693	34,158,132	38,622,600	17.47
	St. Marys borough	5,511	11,756	64,787,316	73,255,018	18.11
	St. Thomas township	5,861	11,587	67,911,407	76,787,428	18.16
	Salem township	4,503	12,797	57,624,891	65,156,464	17.99
	Salem township	2,933	11,566	33,923,078	38,356,824	17.46
	Salem township	7,282	11,166	81,310,812	91,938,135	18.34
	Salisbury township	8,527	12,091	103,099,957	116,575,121	18.57
	Salisbury township	13,401	20,364	272,897,964	308,565,728	19.55
	Saltlick township	3,253	9,545	31,049,885	35,108,105	17.37
	Salunga-Landisville CDP	4,239	17,101	72,491,139	81,965,731	18.22
	Sanatoga CDP	5,534	14,091	77,979,594	88,171,527	18.29
	Sandy township	9,005	13,567	122,170,835	138,138,563	18.74
	Sayre borough	5,791	11,249	65,142,959	73,657,144	18.11
	Schlusser CDP	4,728	15,681	74,139,768	83,829,836	18.24
	Schuylkill township	5,538	24,161	133,803,618	151,291,751	18.83
	Schuylkill Haven borough	5,610	11,902	66,770,220	75,497,088	18.14
	Scott township	17,118	18,380	314,628,840	355,750,829	19.69
	Scott township	4,423	14,282	63,169,286	71,425,512	18.08
	Scott township	5,350	12,239	65,478,650	74,036,710	18.12
	Scottdale borough	5,184	10,952	56,775,168	64,195,682	17.98
	Scott Township CDP	17,118	18,380	314,628,840	355,750,829	19.69
	Selinsgrove borough	5,384	10,634	57,253,456	64,736,483	17.99
	Sellersville borough	4,479	14,887	66,678,873	75,393,802	18.14
	Sewickley borough	4,134	20,233	83,643,222	94,575,391	18.36
	Sewickley township	6,642	10,852	72,078,984	81,499,707	18.22
	Shade township	3,177	8,201	26,054,577	29,459,910	17.20
	Shaler township	30,533	16,029	489,413,457	553,379,796	20.13
	Shaler Township CDP	30,533	16,029	489,413,457	553,379,796	20.13
	Shamokin city	9,184	8,689	79,799,776	90,229,607	18.32
	Shanor-Northvue CDP	3,517	16,499	58,026,983	65,611,110	18.00
	Sharon city	17,493	10,578	185,040,954	209,225,807	19.16
	Sharon Hill borough	5,771	12,617	72,812,707	82,329,328	18.23

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	Sharpsburgh borough	3,781	10,803	40,846,143	46,184,734	17.65
	Sharpsville borough	4,729	11,741	55,523,189	62,780,070	17.96
	Shenandoah borough	6,221	8,795	54,713,695	61,864,775	17.94
	Shenango township	7,187	10,823	77,784,901	87,951,388	18.29
	Shenango township	4,339	13,884	60,242,676	68,116,394	18.04
	Shillington borough	5,062	15,470	78,309,140	88,544,145	18.30
	Shiloh CDP	8,245	14,939	123,172,055	139,270,643	18.75
	Shippensburg borough	5,331	11,109	59,222,079	66,962,405	18.02
	Shippensburg township	4,606	5,888	27,120,128	30,664,729	17.24
	Shrewsbury borough	2,672	16,216	43,329,152	48,992,272	17.71
	Shrewsbury township	5,898	15,235	89,856,030	101,600,213	18.44
	Silver Spring township	8,369	17,614	147,411,566	166,678,258	18.93
	Skippack township	8,790	13,481	118,497,990	133,985,677	18.71
	Slatington borough	4,678	11,395	53,305,810	60,272,879	17.91
	Slippery Rock borough	3,008	9,370	28,184,960	31,868,734	17.28
	Slippery Rock township	4,638	7,761	35,995,518	40,700,132	17.52
	Slippery Rock township	3,196	10,250	32,759,000	37,040,601	17.43
	Smith township	4,844	10,371	50,237,124	56,803,116	17.86
	Smithfield township	4,181	8,932	37,344,692	42,225,643	17.56
	Smithfield township	4,692	14,331	67,241,052	76,029,457	18.15
	Snyder township	3,163	8,775	27,755,325	31,382,946	17.26
	Snyder township	2,535	11,478	29,096,730	32,899,673	17.31
	Solebury township	5,998	34,910	209,390,180	236,757,477	19.28
	Somerset borough	6,454	13,122	84,689,388	95,758,291	18.38
	Somerset township	8,732	12,994	113,463,608	128,293,302	18.67
	Somerset township	2,947	13,529	39,869,963	45,080,967	17.62
	Souderton borough	5,957	15,749	93,816,793	106,078,648	18.48
	South Abington township	6,377	18,671	119,064,967	134,626,758	18.72
	Southampton township	3,552	11,148	39,597,696	44,773,115	17.62
	Southampton township	5,484	13,365	73,293,660	82,873,141	18.23
	South Annvile township	3,008	16,262	48,916,096	55,309,430	17.83
	South Beaver township	2,942	13,084	38,493,128	43,524,180	17.59
	South Buffalo township	2,687	13,897	37,341,239	42,221,739	17.56
	South Fayette township	10,329	14,211	146,785,419	165,970,273	18.93
	South Franklin township	3,665	11,233	41,168,945	46,549,726	17.66
	South Hanover township	4,626	19,203	88,833,078	100,443,561	18.43
	South Heidleburg township	4,382	14,737	64,577,534	73,017,818	18.11
	South Huntingdon township	6,352	11,685	74,223,120	83,924,082	18.25
	South Lebanon township	7,491	13,285	99,517,935	112,524,929	18.54
	South Londonderry township	4,502	14,305	64,401,110	72,818,335	18.10
	South Middleton township	10,340	14,888	153,941,920	174,062,129	18.97
	South Park township	14,292	15,048	215,066,016	243,175,144	19.31
	South Park Township CDP	14,292	15,048	215,066,016	243,175,144	19.31
	South Pymatuning township	2,775	13,100	36,352,500	41,103,772	17.53
	South Strabane township	7,676	17,021	130,653,196	147,729,569	18.81
	South Union township	10,223	15,818	161,707,414	182,842,573	19.02
	South Whitehall township	18,261	20,404	372,597,444	421,295,930	19.86
	South Williamsport borough	6,496	11,762	76,405,952	86,392,210	18.27
	Spring township	18,899	18,326	346,343,074	391,610,114	19.79
	Spring township	5,344	10,935	58,436,640	66,074,309	18.01
	Spring City borough	3,433	14,685	50,413,605	57,002,663	17.86
	Springdale borough	3,992	11,983	47,836,136	54,088,319	17.81
	Springettsbury township	21,564	18,236	393,241,104	444,637,716	19.91

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	Springetts Manor-Yorklyn CDP	3,433	14,242	48,892,786	55,283,073	17.83
	Springfield township	5,177	18,185	94,143,745	106,448,332	18.48
	Springfield township	24,160	18,838	455,126,080	514,611,059	20.06
	Springfield CDP	24,160	18,838	455,126,080	514,611,059	20.06
	Springfield township	3,218	11,639	37,454,302	42,349,579	17.56
	Springfield township	2,968	6,639	19,704,552	22,279,937	16.92
	Springfield township	19,612	22,208	435,543,296	492,468,805	20.01
	Springfield township	3,918	14,929	58,491,822	66,136,703	18.01
	Spring Garden township	11,207	21,610	242,183,270	273,836,623	19.43
	Spring Hill township	2,800	9,567	26,787,600	30,288,739	17.23
	Spring House CDP	2,782	33,770	93,948,140	106,227,162	18.48
	Spry CDP	4,271	16,508	70,505,668	79,720,759	18.19
	State College borough	38,923	8,694	338,396,562	382,624,993	19.76
	Steelton borough	5,152	12,966	66,800,832	75,531,701	18.14
	Stonybrooke-Wilshire CDP	4,887	19,543	95,506,641	107,989,359	18.50
	Stonycreek township	3,562	11,621	41,394,002	46,804,198	17.66
	Stowe CDP	3,598	14,099	50,728,202	57,358,378	17.86
	Stowe township	7,681	10,916	83,845,796	94,804,442	18.37
	Stowe Township CDP	7,681	10,916	83,845,796	94,804,442	18.37
	Straban township	4,565	12,493	57,030,545	64,484,437	17.98
	Strasburg borough	2,568	14,929	38,337,672	43,348,406	17.58
	Strasburg township	3,688	13,585	50,101,480	56,649,743	17.85
	Stroud township	10,600	16,945	179,617,000	203,092,942	19.13
	Stroudsburg borough	5,312	12,788	67,929,856	76,808,288	18.16
	Sugarcreek borough	5,532	10,879	60,182,628	68,048,497	18.04
	Sugarloaf township	3,534	19,821	70,047,414	79,202,611	18.19
	Summerhill township	2,798	8,828	24,700,744	27,929,131	17.15
	Summit township	4,284	11,186	47,920,824	54,184,076	17.81
	Summit township	5,284	12,281	64,892,804	73,374,293	18.11
	Summit Hill borough	3,332	10,547	35,142,604	39,735,742	17.50
	Sunbury city	11,591	9,677	112,166,107	126,826,217	18.66
	Susquehanna township	18,636	18,241	339,939,276	384,369,339	19.77
	Swarthmore borough	6,157	24,641	151,714,637	171,543,740	18.96
	Swatara township	19,661	14,636	287,758,396	325,368,418	19.60
	Swatara township	3,318	12,150	40,313,700	45,582,701	17.64
	Swissvale borough	10,637	13,164	140,025,468	158,326,797	18.88
	Swoyersville borough	5,630	10,619	59,784,970	67,598,866	18.03
	Tamaqua borough	7,943	10,030	79,668,290	90,080,936	18.32
	Tarentum borough	5,674	10,211	57,937,214	65,509,608	18.00
	Taylor borough	6,941	11,227	77,926,607	88,111,615	18.29
	Telford borough	4,238	15,187	64,362,506	72,774,686	18.10
	Texas township	2,570	11,901	30,585,570	34,583,104	17.36
	Thompsonville CDP	3,560	26,696	95,037,760	107,459,195	18.49
	Thornbury township	5,056	15,474	78,236,544	88,462,060	18.30
	Thorndale CDP	3,518	14,686	51,665,348	58,418,009	17.88
	Throop borough	4,070	10,883	44,293,810	50,083,011	17.73
	Tilden township	2,622	14,056	36,854,832	41,671,759	17.55
	Tinicum township	4,167	20,298	84,581,766	95,636,603	18.38
	Tinicum township	4,440	13,454	59,735,760	67,543,224	18.03
	Tinicum Township CDP	4,440	13,454	59,735,760	67,543,224	18.03
	Titusville City	6,434	11,435	73,572,790	83,188,754	18.24
	Tobyhanna Township	4,318	14,088	60,831,984	68,782,724	18.05
	Towamencin Township	14,167	19,370	274,414,790	310,280,803	19.55

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	Towamencing Township	3,111	14,174	44,095,314	49,858,572	17.72
	Towanda Borough	3,242	14,745	47,803,290	54,051,180	17.81
	Trafford borough	3,345	12,085	40,424,325	45,707,784	17.64
	Tredyffrin Township	28,028	34,078	955,138,184	1,079,974,745	20.80
	Tropper CDP	5,137	17,328	89,013,936	100,648,057	18.43
	Tulpehocken Township	2,843	11,743	33,385,349	37,748,814	17.45
	Tunkhannock Township	4,371	14,712	64,306,152	72,710,966	18.10
	Turtle Creek Borough	6,556	9,632	63,147,392	71,400,756	18.08
	Tyler Run-Quenns Gate CDP	2,739	19,843	54,349,977	61,453,519	17.93
	Tyrone Borough	5,743	10,054	57,740,122	65,286,756	17.99
	Union Township	3,440	16,010	55,074,400	62,272,624	17.95
	Union Township	5,581	11,041	61,619,821	69,673,532	18.06
	Union Township	2,755	12,852	35,407,260	40,034,989	17.51
	Union Township	3,265	12,444	40,629,660	45,939,957	17.64
	Union Township	6,322	12,076	76,344,472	86,322,694	18.27
	Union City Borough	3,537	8,303	29,367,711	33,206,071	17.32
	Uniontown City	12,034	10,091	121,435,094	137,306,661	18.74
	Unity Township	20,109	14,340	288,363,060	326,052,112	19.60
	Upland Borough	3,334	11,825	39,424,550	44,577,339	17.61
	Upper Allen Township	13,347	17,698	236,215,206	267,088,533	19.40
	Upper Augusta Township	2,681	13,757	36,882,517	41,703,062	17.55
	Upper Chichester Township	15,004	15,062	225,990,248	255,527,173	19.36
	Upper Dublin Township	24,028	26,977	648,203,356	732,923,535	20.41
	Upper Bwynedd Township	12,197	21,818	266,114,146	300,895,265	19.52
	Upper Hanover Township	4,604	15,794	72,715,576	82,219,502	18.22
	Upper Leacock Township	7,254	12,643	91,712,322	103,699,122	18.46
	Upper Macungie Township	8,757	18,679	163,572,003	184,950,864	19.04
	Upper Makefirled Township	5,949	36,466	216,936,234	245,289,800	19.32
	Upper Merion Township	25,722	24,325	625,687,650	707,465,026	20.38
	Upper Milford Township	6,304	18,019	113,591,776	128,438,221	18.67
	Upper Moreland Township	25,313	19,188	485,705,844	549,187,598	20.12
	Upper Mount Bethel Township	5,476	16,561	90,688,036	102,540,962	18.45
	Upper Nazareth Township	3,413	11,852	40,450,876	45,737,805	17.64
	Upper Paxton Township	3,680	11,844	43,585,920	49,282,600	17.71
	Upper Pottsgrove Township	3,315	15,437	51,173,655	57,862,052	17.87
	Upper Providence Township	9,727	24,885	242,056,395	273,693,166	19.43
	Upper Providence Township	9,682	16,811	162,764,102	184,037,370	19.03
	Upper Providence Township CDP	9,727	24,885	242,056,395	273,693,166	19.43
	Upper Salford Township	2,719	20,720	56,337,680	63,701,015	17.97
	Upper Saucon Township	9,775	18,068	176,614,700	199,698,241	19.11
	Upper Southampton Township	16,076	20,205	324,815,580	367,268,976	19.72
	Upper St. Clair Township	19,692	28,666	564,490,872	638,269,829	20.27
	Upper St. Clair CDP	19,692	28,666	564,490,872	638,269,829	20.27
	Upper Uwchlan Township	4,396	22,100	97,151,600	109,849,314	18.51
	Upper Yoder Township	5,435	14,798	80,427,130	90,938,956	18.33
	Uwchlan Township	12,999	21,815	283,573,185	320,636,200	19.59
	Valley Township	4,007	12,963	51,942,741	58,731,657	17.89
	Valley Green CDP	3,017	15,455	46,627,735	52,721,980	17.78
	Valley View CDP	2,911	20,581	59,911,291	67,741,697	18.03
	Vandergrift Borough	5,904	10,609	62,635,536	70,822,001	18.08
	Vernon Township	5,605	13,462	75,454,510	85,316,414	18.26
	Verona Borough	3,260	10,630	34,653,800	39,183,052	17.48
	Village Green-Green Ridge CDP	9,026	16,428	148,279,128	167,659,210	18.94

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	Village Shires CDP	4,364	23,701	103,431,164	116,949,617	18.58
	Walker Township	2,801	12,234	34,267,434	38,746,188	17.47
	Wallace Township	2,541	19,326	49,107,366	55,525,699	17.83
	Warminster Township	32,832	15,795	518,581,440	586,360,034	20.19
	Warminster Heights CDP	4,310	9,571	41,251,010	46,642,517	17.66
	Warren City	11,122	13,889	154,473,458	174,663,139	18.98
	Warrington Township	12,169	17,671	215,038,399	243,143,918	19.31
	Warrington Township	4,275	13,246	56,626,650	64,027,753	17.97
	Warwick Township	5,915	20,588	121,778,020	137,694,407	18.74
	Warwick Township	2,575	21,307	54,865,525	62,036,449	17.94
	Warwick Township	11,622	15,044	174,841,368	197,693,135	19.10
	Washington Township	2,977	14,303	42,580,031	48,145,241	17.69
	Washington Township	4,102	15,367	63,035,434	71,274,165	18.08
	Washington Township	4,613	10,254	47,301,702	53,484,034	17.79
	Washington Township	11,119	15,541	172,800,379	195,385,389	19.09
	Washington Township	6,356	14,042	89,250,952	100,916,051	18.43
	Washington Township	3,759	15,417	57,952,503	65,526,895	18.00
	Washington City	15,864	9,492	150,581,088	170,262,036	18.95
	Washington Township	7,725	13,962	107,856,450	121,953,288	18.62
	Waterford Township	3,402	12,602	42,872,004	48,475,375	17.70
	Wayne Township	2,785	11,199	31,189,215	35,265,645	17.38
	Wayne Township	2,521	8,766	22,099,086	24,987,437	17.03
	Wayne Township	3,929	12,831	50,412,999	57,001,978	17.86
	Waynesboro Borough	9,578	12,258	117,407,124	132,752,235	18.70
	Waynesboro Borough	4,270	9,321	39,800,670	45,002,618	17.62
	Weatherly Borough	2,640	10,931	28,857,840	32,629,560	17.30
	Weigelstown CDP	8,665	13,769	119,308,385	134,901,991	18.72
	Weisenberg Township	3,246	19,314	62,693,244	70,887,251	18.08
	Wellsboro Borough	3,430	13,851	47,508,930	53,718,347	17.80
	Wesleyville Borough	3,655	10,751	39,294,905	44,430,749	17.61
	West Bradford Township	10,406	17,745	184,654,470	208,788,809	19.16
	West Brandywine Township	5,984	16,627	99,495,968	112,500,091	18.54
	West Brunswick Township	3,227	15,607	50,363,789	56,946,336	17.86
	West Cain Township	6,143	14,648	89,982,664	101,743,398	18.44
	West Chester Borough	18,041	13,082	236,012,362	266,859,178	19.40
	West Chillisquaque Township	3,119	11,280	35,182,320	39,780,649	17.50
	West Cocalico Township	5,521	12,957	71,535,597	80,885,300	18.21
	West Deer Township	11,371	12,999	147,811,629	167,130,609	18.93
	West Donegal Township	5,605	12,928	72,461,440	81,932,150	18.22
	West Earl Township	6,434	12,699	81,705,366	92,384,257	18.34
	West Goshen CDP	8,948	20,426	182,771,848	206,660,129	19.15
	West Goshen Township	18,082	20,589	372,290,298	420,948,640	19.86
	West Hanover Township	6,125	16,028	98,171,500	111,002,515	18.53
	West Hazleton Borough	4,136	11,033	45,632,488	51,596,654	17.76
	West Hempfield Township	12,942	14,994	194,052,348	219,414,990	19.21
	West Lampeter Township	9,865	19,074	188,165,010	212,758,177	19.18
	West Mahanoy Township	4,539	10,636	48,276,804	54,586,582	17.82
	West Manchester Township	14,369	15,169	217,963,361	246,451,172	19.32
	West Manheim Township	4,590	16,222	74,458,980	84,190,769	18.25
	West Mead Township	5,401	11,632	62,824,432	71,035,585	18.08
	West Mifflin Borough	23,644	12,676	299,711,344	338,883,617	19.64
	Westmont Borough	5,789	21,203	122,744,167	138,786,830	18.75
	West Newton Borough	3,152	10,407	32,802,864	37,090,198	17.43

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	West Norriton Township	15,029	20,544	308,755,776	349,110,156	19.67
	West Norriton CDP	15,029	20,544	308,755,776	349,110,156	19.67
	West Penn Township	3,693	12,027	44,415,711	50,220,844	17.73
	West Pennsboro Township	4,945	13,246	65,501,470	74,062,512	18.12
	West Pittston Borough	5,590	12,512	69,942,080	79,083,510	18.19
	West Pottsgrove Township	3,829	13,936	53,360,944	60,335,219	17.92
	West Providence Township	3,233	11,799	38,146,167	43,131,871	17.58
	West Reading Borough	4,142	13,649	56,534,158	63,923,172	17.97
	West Rockhill Township	4,518	16,771	75,771,378	85,674,697	18.27
	West Salem Township	3,547	11,438	40,570,586	45,873,162	17.64
	Westtown Township	9,937	23,547	233,986,539	264,568,580	19.39
	West View Borough	7,734	12,929	99,992,886	113,061,956	18.54
	West Whiteland Township	12,403	21,387	265,262,961	299,932,830	19.52
	West Wyoming Borough	3,117	12,381	38,591,577	43,635,496	17.59
	West Wyomissing CDP	3,097	14,883	46,092,651	52,116,960	17.77
	West York Borough	4,283	13,807	59,135,381	66,864,375	18.02
	Wharton Township	3,390	8,623	29,231,970	33,052,588	17.31
	Wheatfield Township	3,097	12,351	38,251,047	43,250,459	17.58
	White Township	13,788	14,418	198,795,384	224,777,941	19.23
	White Deer Township	3,958	11,005	43,557,790	49,250,793	17.71
	Whitehall Borough	14,451	17,917	258,918,567	292,759,224	19.49
	Whitehall Township	22,779	14,959	340,751,061	385,287,225	19.77
	Whitemarsh Township	14,863	26,919	400,097,097	452,389,788	19.93
	White Oak Borough	8,761	15,137	132,615,257	149,948,071	18.83
	Whitfield CDP	2,585	21,158	54,693,430	61,841,861	17.94
	Whitpain Township	15,673	28,788	451,194,324	510,165,422	20.05
	Wilkes-Barre City	47,523	10,513	499,609,299	564,908,234	20.15
	Wilkes-Barre Township	3,572	12,345	44,096,340	49,859,732	17.72
	Wilkes-Barre Township CDP	3,572	12,345	44,096,340	49,859,732	17.72
	Wilkins Township	7,585	17,942	136,090,070	153,877,042	18.85
	Wilkinsburg Borough	21,080	13,000	274,040,000	309,857,028	19.55
	Wilkins Township	7,487	18,004	134,795,948	152,413,778	18.84
	Williams Township	3,982	14,648	58,328,336	65,951,850	18.00
	Williamsport City	31,933	10,276	328,143,508	371,031,864	19.73
	Willistown Township	9,380	31,270	293,312,600	331,648,557	19.62
	Willow Grove CDP	16,325	18,051	294,682,575	333,197,588	19.62
	Willow Street CDP	5,817	20,206	117,538,302	132,900,558	18.71
	Wilson Borough	7,830	13,269	103,896,270	117,475,512	18.58
	Windber Borough	4,756	9,427	44,834,812	50,694,722	17.74
	Wind Gap Borough	2,741	13,169	36,096,229	40,814,006	17.52
	Windsor Township	9,424	15,531	146,364,144	165,493,938	18.92
	Winfield Township	3,162	11,434	36,154,308	40,879,676	17.53
	Winslow Township	2,526	9,547	24,115,722	27,267,647	17.12
	Wolf Township	2,617	11,819	30,930,323	34,972,916	17.37
	Wolfdale CDP	2,906	13,022	37,841,932	42,787,873	17.57
	Woodburne CDP	2,953	20,535	60,639,855	68,565,484	18.04
	Woodlyn CDP	10,151	14,356	145,727,756	164,774,374	18.92
	Woodside CDP	2,947	31,209	91,972,923	103,993,784	18.46
	Woodward Township	2,662	12,360	32,902,320	37,202,653	17.43
	Worcester Township	4,686	22,679	106,273,794	120,163,779	18.60
	Wornleysburg Borough	2,847	23,549	67,044,003	75,806,654	18.14
	Wright Township	4,685	13,459	63,055,415	71,296,758	18.08
	Wyncote CDP	2,960	25,043	74,127,280	83,815,715	18.24

State	Town/City Name	Population	Per Capita Income	Total Town Income (1992 Dollars)	Total Town Income (1998 Dollars)	Log of Total Income
Pennsylvania	Wyndmoor CDP	5,682	27,732	157,573,224	178,168,044	19.00
	Wyoming Borough	3,255	14,745	47,994,975	54,267,918	17.81
	Wyomissing Borough	7,332	28,801	211,168,932	238,768,711	19.29
	Yeadon Borough	11,980	15,334	183,701,320	207,711,083	19.15
	York City	42,192	10,485	442,383,120	500,202,594	20.03
	York Township	19,231	17,835	342,984,885	387,813,009	19.78
	Youngwood Borough	3,372	11,580	39,047,760	44,151,302	17.60
	Zelienople Borough	4,158	14,850	61,746,300	69,816,541	18.06
			Average log income per town:			18.50
			Standard deviation			0.90
			Percent Small Governements*			96%

Source: Statistical Abstract of the United States, 1998, Sept. 25, 1998, pg. 306

Average income data by town is taken from all towns with populations under 50,000 (i.e. small towns/cities/boroughs) in five states (KS, NH, NE, CA, PA) and is assumed to be representative of small towns throughout the United States. Income data from only small towns is used because large towns or cities are unlikely to be significantly impacted by the costs of well closure.

Contract No. 68-C6-0061
Work Assignment No. 1-14

ECONOMIC ANALYSIS FOR THE PROPOSED REVISIONS TO UNDERGROUND INJECTION CONTROL REGULATIONS FOR CLASS V INJECTION WELLS

VOLUME 2

DRAFT

May 12, 1998

Prepared by:

The Cadmus Group, Inc.
135 Beaver Street
Waltham, MA 02154

Prepared for:

Office of Ground Water and Drinking Water
U.S. Environmental Protection Agency
Washington, D.C. 20460

EPA Staff Draft–Do Not Cite or Quote–Deliberative Material

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	ALABAMA							ALASKA						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	1362	770	0	0	0	589	3	350	197	0	0	0	153	0
1541	163	92	0	0	0	70	0	32	18	0	0	0	14	0
1611	149	84	0	0	0	64	0	113	64	0	0	0	49	0
1711	1140	645	0	0	0	493	3	175	98	0	0	0	77	0
1794	204	115	0	0	0	88	0	80	45	0	0	0	35	0
2752	332	188	1	0	0	142	1	38	21	0	0	0	17	0
2759	101	57	0	0	0	44	0	0	0	0	0	0	0	0
3089	70	40	0	0	0	30	0	0	0	0	0	0	0	0
3599	364	206	0	0	0	157	1	0	0	0	0	0	0	0
4142	24	14	0	0	1	9	0	38	21	0	0	2	14	0
4212	862	487	0	0	49	324	2	101	57	0	0	6	38	0
4213	916	518	0	0	52	344	2	83	47	0	0	5	32	0
4581	50	28	3	0	2	16	0	46	26	3	0	2	15	0
4911	see Appendix IV							see Appendix IV						
4953	37	21	0	0	0	16	0	48	27	0	0	0	21	0
5012	191	108	0	0	0	83	0	8	4	0	0	0	4	0
5013	434	245	0	0	0	188	1	63	35	0	0	0	28	0
5015	141	80	0	0	8	53	0	6	3	0	0	0	2	0
5063	278	157	0	0	0	120	1	45	25	0	0	0	20	0
5082	122	69	0	0	0	53	0	22	12	0	0	0	10	0
5083	168	95	0	0	0	73	0	3	2	0	0	0	1	0
5084	423	239	0	0	0	183	1	78	44	0	0	0	34	0
5085	320	181	0	0	0	138	1	28	16	0	0	0	12	0
5087	107	61	0	0	0	46	0	26	15	0	0	0	11	0
5169	130	74	11	0	0	45	0	28	16	0	0	0	12	0
5172	63	36	0	0	0	27	0	9	5	0	0	0	4	0
5261	166	94	0	0	0	72	0	8	4	0	0	0	4	0
5411	2724	1540	0	0	0	1,177	6	303	170	0	0	0	133	0
5511	347	196	0	0	20	130	1	36	20	0	0	2	14	0
5521	511	289	0	0	29	192	1	14	8	0	0	1	5	0
5531	1120	633	0	0	63	421	2	70	39	0	0	4	27	0
5541	2183	1234	22	2	120	800	4	204	115	0	2	11	76	0
5551	93	53	0	0	0	40	0	40	22	0	0	0	18	0
5941	298	169	0	0	0	129	1	86	48	0	0	0	38	0
5983	2	1	0	0	0	1	0	40	22	0	0	0	18	0
5999	548	310	0	0	0	237	1	82	46	0	0	0	36	0
7261	239	135	1	0	0	102	1	14	8	0	0	0	6	0
7389	516	292	0	0	0	223	1	105	59	0	0	0	46	0

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

ALABAMA

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7514	73	41	0	0	29	3	0
7515	13	7	0	0	4	2	0
7532	560	317	0	0	31	211	1
7533	66	37	0	0	4	25	0
7537	125	71	0	0	7	47	0
7538	978	553	1	0	55	367	2
7539	139	79	0	0	8	52	0
7542	153	87	0	0	0	66	0
7549	123	70	1	0	7	45	0
7692	88	50	0	0	0	38	0
7694	73	41	0	0	0	32	0
7699	510	288	0	0	0	220	1
7999	231	131	0	0	0	100	1
8062	31	18	0	0	0	13	0
8211	2134	1207	0	0	0	922	5
8734	61	34	0	0	0	26	0
9111	447	253	0	0	25	168	1
9224	601	340	0	0	0	260	1
Total	**23,304**	**13,178**	**40**		**514**	**9,519**	**51**

ALASKA

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7514	37	21	0	0	2	14	0
7515	1	1	0	0	0	0	0
7532	62	35	0	0	4	24	0
7533	10	6	0	0	1	4	0
7537	13	7	0	0	1	5	0
7538	125	70	0	0	7	48	0
7539	11	6	0	0	1	4	0
7542	20	11	0	0	0	9	0
7549	24	13	0	0	1	9	0
7692	18	10	0	0	0	8	0
7694	6	3	0	0	0	3	0
7699	99	56	0	0	0	43	0
7999	205	115	0	0	0	90	0
8062	1	1	0	0	0	0	0
8211	477	268	0	0	0	209	0
8734	19	11	0	0	0	8	0
9111	196	110	0	0	11	75	0
9224	79	44	0	0	0	35	0
Total	**3,825**	**2,150**	**3**	**2**	**61**	**1,609**	**1**

POTW Coverage 56.55%
Wells in SWPA 0.53%

POTW Coverage 56.20%
Wells in SWPA 0.07%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding.

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	ARIZONA							ARKANSAS						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	1393	858	0	0	0	532	3	666	368	0	0	0	296	2
1541	80	49	0	0	0	31	0	59	33	0	0	0	26	0
1611	148	91	0	0	0	57	0	109	60	0	0	0	48	0
1711	1085	668	0	0	0	414	2	695	384	0	0	0	309	2
1794	125	77	0	0	0	48	0	105	58	0	0	0	47	0
2752	515	317	0	0	0	197	1	175	97	0	0	0	78	0
2759	110	68	0	0	0	42	0	63	35	0	0	0	28	0
3089	109	67	0	0	0	42	0	64	35	0	0	0	28	0
3599	305	188	0	0	0	116	1	161	89	1	0	0	71	0
4142	24	15	0	0	1	8	0	13	7	0	0	1	5	0
4212	494	304	0	0	25	164	1	609	337	0	0	35	236	1
4213	402	248	0	0	20	134	1	797	441	0	0	46	308	2
4581	65	40	1	0	3	21	0	42	23	3	0	2	14	0
4911	see Appendix IV							see Appendix IV						
4953	50	31	0	0	0	19	0	33	18	0	0	0	15	0
5012	104	64	0	0	0	40	0	102	56	0	0	0	45	0
5013	386	238	0	0	0	147	1	334	185	0	0	0	149	1
5015	118	73	0	0	6	39	0	103	57	0	0	6	40	0
5063	291	179	0	0	0	111	1	130	72	0	0	0	58	0
5082	117	72	0	0	0	45	0	57	32	0	0	0	25	0
5083	86	53	0	0	0	33	0	221	122	0	0	0	98	1
5084	326	201	0	0	0	125	1	209	116	0	0	0	93	1
5085	157	97	0	0	0	60	0	169	93	0	0	0	75	0
5087	117	72	0	0	0	45	0	81	45	0	0	0	36	0
5169	112	69	0	0	0	43	0	80	44	0	0	0	36	0
5172	48	30	0	0	0	18	0	61	34	0	0	0	27	0
5261	135	83	0	0	0	52	0	107	59	0	0	0	48	0
5411	1709	1053	0	0	0	653	3	1589	878	0	0	0	707	4
5511	256	158	1	0	13	84	0	311	172	1	0	18	120	1
5521	236	145	0	0	12	78	0	330	182	0	0	19	128	1
5531	683	421	0	0	34	227	1	576	318	0	0	33	223	1
5541	1169	720	20	1	56	370	2	1299	718	25	1	72	480	3
5551	42	26	0	0	0	16	0	44	24	0	0	0	20	0
5941	378	233	0	0	0	144	1	185	102	0	0	0	82	0
5983	2	1	0	0	0	1	0	9	5	0	0	0	4	0
5999	764	471	0	0	0	292	1	306	169	0	0	0	136	1
7261	106	65	0	0	0	40	0	215	119	0	0	0	96	1
7389	978	603	0	0	49	325	2	286	158	0	0	0	127	1

EPA Staff Draft--Do Not Cite or Quote--Deliberative Material

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

ARIZONA

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7514	79	49	0	0	4	26	0
7515	13	8	0	0	1	4	0
7532	416	256	0	0	21	138	1
7533	52	32	0	0	3	17	0
7537	132	81	0	0	7	44	0
7538	1171	721	0	0	58	389	2
7539	199	123	0	0	10	66	0
7542	236	145	0	0	0	90	0
7549	215	132	0	0	11	71	0
7692	58	36	0	0	0	22	0
7694	39	24	0	0	0	15	0
7699	500	308	0	0	0	191	1
7999	275	169	0	0	0	105	1
8062	8	5	0	0	0	3	0
8211	1795	1106	0	0	0	686	4
8734	71	44	0	0	0	27	0
9111	147	91	0	0	7	49	0
9224	275	169	0	0	0	105	1
Total	**18,906**	**11,648**	**22**	**1**	**339**	**6,861**	**35**

ARKANSAS

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7514	38	21	0	0	2	15	0
7515	3	2	0	0	0	1	0
7532	351	194	0	0	20	136	1
7533	55	30	1	0	3	20	0
7537	60	33	0	0	3	23	0
7538	596	329	2	0	34	229	1
7539	112	62	0	0	7	43	0
7542	88	49	0	0	0	39	0
7549	76	42	1	0	4	29	0
7692	58	32	0	0	0	26	0
7694	44	24	0	0	0	20	0
7699	305	169	0	0	0	136	1
7999	190	105	0	0	0	85	0
8062	13	7	0	0	0	6	0
8211	1511	835	0	0	0	672	4
8734	30	17	0	0	0	13	0
9111	584	323	1	0	34	225	1
9224	391	216	0	0	0	174	1
Total	**14,900**	**8,235**	**35**	**1**	**342**	**6,253**	**34**

POTW Coverage
61.61%

Wells in SWPA
0.51%

POTW Coverage
55.27%

Wells in SWPA
0.54%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biennial Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

Estimated Number of Wast

SIC Code	CALIFORNIA Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells	COLORADO Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
0742				see Appendix IV							see Appendix IV			
1521	13950	10245	0	0	0	3,641	64	1651	1284	0	0	0	365	2
1541	885	650	0	0	0	231	4	99	77	0	0	0	22	0
1611	896	658	0	0	0	234	4	143	111	0	0	0	32	0
1711	6998	5139	0	0	0	1,827	32	1232	958	0	0	0	273	1
1794	850	624	0	0	0	222	4	304	236	0	0	0	67	0
2752	4035	2963	1	0	0	1,052	19	602	468	0	0	0	133	1
2759	1129	829	4	0	0	291	5	161	125	0	0	0	36	0
3089	1142	839	0	0	0	298	5	118	92	0	0	0	26	0
3599	3395	2493	0	0	0	886	16	302	235	0	0	0	67	0
4142	87	64	0	0	3	20	0	17	13	0	0	0	3	0
4212	4897	3596	0	0	169	1,112	20	581	452	0	0	17	112	0
4213	2962	2175	0	0	102	673	12	546	425	0	0	16	105	0
4581	403	296	18	0	12	76	1	64	50	1	0	2	11	0
4911				see Appendix IV							see Appendix IV			
4953	371	272	0	0	0	97	2	59	46	0	0	0	13	0
5012	703	516	0	0	0	183	3	126	98	0	0	0	28	0
5013	2758	2025	0	0	0	720	13	372	289	0	0	0	82	0
5015	770	565	0	0	27	175	3	132	103	0	0	4	25	0
5063	2127	1562	0	0	0	555	10	289	225	0	0	0	64	0
5082	398	292	0	0	0	104	2	98	76	0	0	0	22	0
5083	684	502	0	0	0	179	3	157	122	0	0	0	35	0
5084	2952	2168	0	0	0	770	14	443	345	0	0	0	98	0
5085	1576	1157	0	0	0	411	7	222	173	0	0	0	49	0
5087	816	599	0	0	0	213	4	145	113	0	0	0	32	0
5169	933	685	7	0	0	237	4	139	108	0	0	0	31	0
5172	315	231	0	0	0	82	1	65	51	0	0	0	14	0
5261	932	684	0	0	0	243	4	91	71	0	0	0	20	0
5411	11774	8647	0	0	0	3,073	54	1197	931	0	0	0	265	1
5511	2009	1475	3	0	69	454	8	262	204	0	0	8	50	0
5521	1013	744	0	0	35	230	4	284	221	0	0	8	55	0
5531	4825	3543	0	0	167	1,096	19	621	483	0	0	18	120	0
5541	8387	6159	214	71	253	1,661	29	1459	1135	1	0	42	280	1
5551	333	245	0	0	0	87	2	27	21	0	0	0	6	0
5941	2763	2029	0	0	0	721	13	675	525	0	0	0	149	1
5983	21	15	0	0	0	5	0	6	5	0	0	0	1	0
5999	5120	3760	0	0	0	1,336	24	819	637	0	0	0	181	1
7261	663	487	0	0	0	173	3	105	82	0	0	0	23	0
7389	7681	5641	0	0	0	2,005	35	946	736	0	0	0	209	1

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

Estimated Number of Wast

CALIFORNIA

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7514	605	444	0	0	21	137	2
7515	94	69	0	0	3	21	0
7532	4052	2976	1	0	140	919	16
7533	465	341	0	0	16	106	2
7537	850	624	0	0	29	193	3
7538	8659	6359	6	0	298	1,961	35
7539	1575	1157	0	0	54	358	6
7542	1408	1034	0	0	0	367	6
7549	1412	1037	0	0	49	321	6
7692	459	337	0	0	0	120	2
7694	176	129	0	0	0	46	1
7699	3582	2631	0	0	0	935	16
7999	2162	1588	0	0	0	564	10
8062	114	84	0	0	0	30	1
8211	13329	9789	0	0	0	3,479	61
8734	615	452	0	0	0	161	3
9111	584	429	0	0	20	133	2
9224	1152	846	0	0	0	301	5
Total	**142,846**	**104,906**	**254**	**71**	**1,466**	**35,523**	**625**

POTW Coverage 73.44%

Wells in SWPA 1.73%

COLORADO

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7514	89	69	0	0	3	17	0
7515	12	9	0	0	0	2	0
7532	522	406	0	0	15	100	0
7533	56	44	0	0	2	11	0
7537	93	72	0	0	3	18	0
7538	1099	855	0	0	32	212	1
7539	159	124	0	0	5	31	0
7542	190	148	0	0	0	42	0
7549	227	177	0	0	7	44	0
7692	63	49	0	0	0	14	0
7694	30	23	0	0	0	7	0
7699	528	411	0	0	0	117	0
7999	713	555	0	0	0	158	1
8062	3	2	0	0	0	1	0
8211	2078	1616	0	0	0	460	2
8734	98	76	0	0	0	22	0
9111	314	244	0	0	9	60	0
9224	324	252	0	0	0	72	0
Total	**21,157**	**16,456**	**2**	**0**	**189**	**4,492**	**18**

POTW Coverage 77.78%

Wells in SWPA 0.41%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding.

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Industrial Disposal Wells by State
(Assumes One Well per Establishment)

SIC Code	CONNECTICUT Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells	DELAWARE Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
0742				see Appendix IV							see Appendix IV			
1521	1646	771	0	0	0	747	128	458	151	0	0	0	280	27
1541	73	34	0	0	0	33	6	30	10	0	0	0	18	2
1611	163	76	0	0	0	74	13	30	10	0	0	0	18	2
1711	1236	579	0	0	0	561	96	233	77	0	0	0	142	14
1794	303	142	0	0	0	137	24	31	10	0	0	0	19	2
2752	472	221	1	0	0	213	37	66	22	0	0	0	40	4
2759	131	61	3	0	0	57	10	14	5	0	0	0	9	1
3089	159	75	0	0	0	72	12	27	9	0	0	0	16	2
3599	537	252	0	0	0	244	42	41	14	0	0	0	25	2
4142	12	6	0	0	1	5	1	8	3	0	0	1	4	0
4212	171	80	0	0	12	67	12	138	45	0	0	12	73	7
4213	288	135	0	0	20	114	19	114	38	0	0	10	61	6
4581	37	17	3	0	2	12	2	16	5	0	0	1	9	1
4911				see Appendix IV							see Appendix IV			
4953	74	35	0	0	0	34	6	13	4	0	0	0	8	1
5012	88	41	0	0	0	40	7	20	7	0	0	0	12	1
5013	350	164	0	0	0	159	27	85	28	0	0	0	52	5
5015	64	30	0	0	4	25	4	27	9	0	0	2	14	1
5063	306	143	0	0	0	139	24	43	14	0	0	0	26	3
5082	52	24	0	0	0	24	4	20	7	0	0	0	12	1
5083	46	22	0	0	0	21	4	24	8	0	0	0	15	1
5084	544	255	0	0	0	247	42	62	20	0	0	0	38	4
5085	232	109	0	0	0	105	18	34	11	0	0	0	21	2
5087	74	35	0	0	0	34	6	16	5	0	0	0	10	1
5169	153	72	0	0	0	69	12	26	9	0	0	0	16	2
5172	50	23	0	0	0	23	4	8	3	0	0	0	5	0
5261	186	87	0	0	0	84	14	45	15	0	0	0	27	3
5411	1495	701	0	0	0	678	116	374	123	0	0	0	229	22
5511	365	171	0	0	25	144	25	68	22	0	0	6	36	4
5521	180	84	0	0	12	71	12	50	16	0	0	4	27	3
5531	399	187	0	0	28	157	27	91	30	0	0	8	48	5
5541	1460	684	2 **	42	101	539	92	287	95	0	0	25	153	15
5551	71	33	0	0	0	32	6	17	6	0	0	0	10	1
5941	318	149	0	0	0	144	25	91	30	0	0	0	56	5
5983	380	178	0	0	0	172	30	37	12	0	0	0	23	2
5999	475	223	0	0	0	215	37	124	41	0	0	0	76	7
7261	233	109	0	0	0	106	18	50	16	0	0	0	31	3
7389	837	392	0	0	0	380	65	149	49	0	0	0	91	9

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Industrial Disposal Wells by State
(Assumes One Well per Establishment)

CONNECTICUT

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7514	95	45	0	0	7	37	6
7515	15	7	0	0	1	6	1
7532	503	236	0	0	35	199	34
7533	82	38	0	0	6	32	6
7537	86	40	0	0	6	34	6
7538	844	396	0	0	58	333	57
7539	86	40	0	0	6	34	6
7542	141	66	0	0	0	64	11
7549	125	59	0	0	9	49	8
7692	79	37	0	0	0	36	6
7694	26	12	0	0	0	12	2
7699	428	201	0	0	0	194	33
7999	289	135	0	0	0	131	22
8062	0	0	0	0	0	0	0
8211	1081	507	0	0	0	490	84
8734	62	29	0	0	0	28	5
9111	306	143	0	0	21	121	21
9224	450	211	0	0	0	204	35
Total	**18,358**	**8,604**	**9**	**42**	**353**	**7,983**	**1,367**

POTW Coverage 46.87%

Wells in SWPA 14.62%

DELAWARE

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7514	14	5	0	0	1	7	1
7515	5	2	0	0	0	3	0
7532	107	35	0	0	9	57	6
7533	15	5	0	0	1	8	1
7537	18	6	0	0	2	10	1
7538	188	62	0	0	16	100	10
7539	29	10	0	0	3	15	2
7542	31	10	0	0	0	19	2
7549	26	9	0	0	2	14	1
7692	14	5	0	0	0	9	1
7694	7	2	0	0	0	4	0
7699	87	29	0	0	0	53	5
7999	76	25	0	0	0	46	5
8062	0	0	0	0	0	0	0
8211	261	86	0	0	0	159	16
8734	18	6	0	0	0	11	1
9111	65	21	0	0	6	35	3
9224	29	10	0	0	0	18	2
Total	**3,957**	**1,303**	**0**	**0**	**110**	**2,317**	**226**

POTW Coverage 32.94%

Wells in SWPA 8.89%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

Estimated Number of I

SIC Code	DISTRICT OF COLUMBIA Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells	FLORIDA Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	62	62	0	0	0	0	0	5435	3175	0	0	0	2,180	80
1541	4	4	0	0	0	0	0	310	181	0	0	0	124	5
1611	10	10	0	0	0	0	0	480	280	0	0	0	193	7
1711	39	39	0	0	0	0	0	4584	2678	0	0	0	1,839	68
1794	10	10	0	0	0	0	0	617	360	0	0	0	247	9
2752	80	80	0	0	0	0	0	1729	1010	0	0	0	693	26
2759	25	25	0	0	0	0	0	439	256	1	0	0	175	6
3089	0	0	0	0	0	0	0	369	216	0	0	0	148	5
3599	0	0	0	0	0	0	0	598	349	0	0	0	240	9
4142	7	7	0	0	0	0	0	29	17	0	0	2	10	0
4212	31	31	0	0	0	0	0	1548	904	0	0	84	540	20
4213	2	2	0	0	0	0	0	1359	794	0	0	73	474	18
4581	0	0	0	0	0	0	0	321	187	5	0	17	108	4
4911	see Appendix IV							see Appendix IV						
4953	6	6	0	0	0	0	0	144	84	0	0	0	58	2
5012	5	5	0	0	0	0	0	616	360	0	0	0	247	9
5013	17	17	0	0	0	0	0	1635	955	0	0	0	656	24
5015	6	6	0	0	0	0	0	404	236	0	0	22	141	5
5063	17	17	0	0	0	0	0	1101	643	0	0	0	442	16
5082	1	1	0	0	0	0	0	287	168	0	0	0	115	4
5083	1	1	0	0	0	0	0	420	245	0	0	0	168	6
5084	7	7	0	0	0	0	0	1515	885	0	0	0	608	22
5085	5	5	0	0	0	0	0	699	408	0	0	0	280	10
5087	15	15	0	0	0	0	0	406	237	0	0	0	163	6
5169	3	3	0	0	0	0	0	614	359	5	0	0	241	9
5172	3	3	0	0	0	0	0	151	88	0	0	0	61	2
5261	1	1	0	0	0	0	0	687	401	0	0	0	276	10
5411	312	312	0	0	0	0	0	7306	4267	0	0	0	2,930	108
5511	7	7	0	0	0	0	0	994	581	4	0	53	344	13
5521	12	12	0	0	0	0	0	1343	784	0	0	73	469	17
5531	27	27	0	0	0	0	0	2546	1487	0	0	138	888	33
5541	117	117	0	0	0	0	0	5602	3272	42	195	272	1,756	65
5551	1	1	0	0	0	0	0	644	376	0	0	0	258	10
5941	11	11	0	0	0	0	0	1436	839	0	0	0	576	21
5983	3	3	0	0	0	0	0	74	43	0	0	0	30	1
5999	103	103	0	0	0	0	0	3062	1789	0	0	0	1,228	45
7261	26	26	0	0	0	0	0	544	318	0	0	0	218	8

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

Estimated Number of I

DISTRICT OF COLUMBIA

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7389	199	199	0	0	0	0	0
7514	6	6	0	0	0	0	0
7515	2	2	0	0	0	0	0
7532	28	28	0	0	0	0	0
7533	4	4	0	0	0	0	0
7537	6	6	0	0	0	0	0
7538	45	45	0	0	0	0	0
7539	8	8	0	0	0	0	0
7542	14	14	0	0	0	0	0
7549	5	5	0	0	0	0	0
7692	0	0	0	0	0	0	0
7694	2	2	0	0	0	0	0
7699	27	27	0	0	0	0	0
7999	26	26	0	0	0	0	0
8062	0	0	0	0	0	0	0
8211	329	329	0	0	0	0	0
8734	3	3	0	0	0	0	0
9111	2	2	0	0	0	0	0
9224	5	5	0	0	0	0	0
Total	**1,687**	**1,687**	**0**	**0**	**0**	**0**	**0**

POTW Coverage 100.00%

Wells in SWPA 0.00%

FLORIDA

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7389	4418	2581	0	0	0	1,772	65
7514	373	218	0	0	20	130	5
7515	51	30	0	0	3	18	1
7532	1826	1067	0	0	99	637	24
7533	240	140	0	0	13	84	3
7537	421	246	0	0	23	147	5
7538	3747	2189	1	0	202	1,307	48
7539	732	428	0	0	40	255	9
7542	568	332	0	0	0	228	8
7549	724	423	0	0	39	253	9
7692	298	174	0	0	0	120	4
7694	166	97	0	0	0	67	2
7699	2153	1258	0	0	0	864	32
7999	1632	953	0	0	0	655	24
8062	95	55	0	0	0	38	1
8211	6021	3517	0	0	0	2,415	89
8734	234	137	0	0	0	94	3
9111	536	313	0	0	29	187	7
9224	562	328	0	0	0	225	8
Total	**74,845**	**43,717**	**58**	**195**	**1,200**	**28,618**	**1,056**

POTW Coverage 58.41%

Wells in SWPA 3.56%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding.

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

dustrial

SIC Code	GEORGIA Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells	HAWAII Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	2014	848	0	0	0	1,143	23	564	379	0	0	0	183	2
1541	214	90	0	0	0	122	2	32	21	0	0	0	10	0
1611	264	111	0	0	0	150	3	43	29	0	0	0	14	0
1711	2029	854	0	0	0	1,152	23	251	169	0	0	0	81	1
1794	300	126	0	0	0	170	3	22	15	0	0	0	7	0
2752	756	318	0	0	0	429	8	78	52	0	0	0	25	0
2759	244	103	0	0	0	139	3	27	18	0	0	0	9	0
3089	148	62	0	0	0	84	2	0	0	0	0	0	0	0
3599	376	158	0	0	0	213	4	19	13	0	0	0	6	0
4142	12	5	0	0	1	6	0	3	2	0	0	0	1	0
4212	1128	475	0	0	85	557	11	169	114	0	0	7	48	1
4213	1182	498	0	0	89	584	12	28	19	0	0	1	8	0
4581	84	35	1	0	6	41	1	24	16	4	0	1	3	0
4911	see Appendix IV							see Appendix IV						
4953	68	29	0	0	0	39	1	26	17	0	0	0	8	0
5012	232	98	0	0	0	132	3	19	13	0	0	0	6	0
5013	830	349	0	0	0	471	9	78	52	0	0	0	25	0
5015	207	87	0	0	16	102	2	8	5	0	0	0	2	0
5063	553	233	0	0	0	314	6	67	45	0	0	0	22	0
5082	171	72	0	0	0	97	2	16	11	0	0	0	5	0
5083	297	125	0	0	0	169	3	14	9	0	0	0	5	0
5084	927	390	0	0	0	526	10	39	26	0	0	0	13	0
5085	533	224	0	0	0	303	6	50	34	0	0	0	16	0
5087	245	103	0	0	0	139	3	26	17	0	0	0	8	0
5169	416	175	3	0	0	233	5	32	21	0	0	0	10	0
5172	115	48	0	0	0	65	1	24	16	0	0	0	8	0
5261	314	132	0	0	0	178	4	17	11	0	0	0	6	0
5411	3997	1683	0	0	0	2,269	45	604	406	0	0	0	196	2
5511	654	275	0	0	49	323	6	76	51	0	0	3	21	0
5521	595	250	0	0	45	294	6	23	15	0	0	1	6	0
5531	1430	602	0	0	108	706	14	153	103	0	0	7	43	1
5541	3284	1383	24	11	243	1,592	54	326	219	1	7	13	85	1
5551	101	43	0	0	0	57	1	15	10	0	0	0	5	0
5941	454	191	0	0	0	258	5	163	109	0	0	0	53	1
5983	11	5	0	0	0	6	0	1	1	0	0	0	0	0
5999	1019	429	0	0	0	579	11	217	146	0	0	0	70	1
7261	413	174	1	0	0	234	5	26	17	0	0	0	8	0

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

dustrial

GEORGIA

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7389	1433	603	0	0	108	708	14
7514	129	54	0	0	10	64	1
7515	20	8	0	0	2	10	0
7532	821	346	0	0	62	406	8
7533	110	46	0	0	8	54	1
7537	200	84	0	0	15	99	2
7538	1629	686	0	0	123	805	16
7539	314	132	0	0	24	155	3
7542	281	118	0	0	0	160	3
7549	278	117	0	0	21	137	3
7692	119	50	0	0	0	68	1
7694	84	35	0	0	0	48	1
7699	915	385	0	0	0	520	10
7999	465	196	0	0	0	264	5
8062	36	15	0	0	0	20	0
8211	2809	1183	0	0	0	1,595	32
8734	93	39	0	0	0	53	1
9111	648	273	0	0	49	320	6
9224	238	100	0	0	0	135	3
Total	**36,239**	**15,257**	**29**	**11**	**1,061**	**19,496**	**408**

POTW Coverage 42.10%

Wells in SWPA 1.94%

HAWAII

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7389	222	149	0	0	0	72	1
7514	64	43	0	0	3	18	0
7515	4	3	0	0	0	1	0
7532	162	109	2	0	7	44	1
7533	9	6	1	0	0	2	0
7537	15	10	0	0	1	4	0
7538	191	128	2	0	8	52	1
7539	41	28	0	0	2	12	0
7542	17	11	0	0	0	6	0
7549	40	27	0	0	2	11	0
7692	14	9	0	0	0	5	0
7694	5	3	0	0	0	2	0
7699	134	90	0	0	0	43	1
7999	286	192	0	0	0	93	1
8062	1	1	0	0	0	0	0
8211	517	347	0	0	0	168	2
8734	13	9	0	0	0	4	0
9111	2	1	0	0	0	1	0
9224	7	5	0	0	0	2	0
Total	**5,024**	**3,375**	**10**	**7**	**55**	**1,559**	**19**

POTW Coverage 67.17%

Wells in SWPA 1.19%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding.

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	IDAHO							ILLINOIS						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	774	405	0	0	0	366	2	4238	2695	0	0	0	1,516	27
1541	45	24	0	0	0	21	0	325	207	0	0	0	116	2
1611	76	40	0	0	0	36	0	437	278	0	0	0	156	3
1711	396	207	0	0	0	187	1	3534	2247	0	0	0	1,264	23
1794	83	43	0	0	0	39	0	561	357	0	0	0	201	4
2752	111	58	0	0	0	53	0	1613	1026	1	0	0	576	10
2759	22	12	0	0	0	10	0	517	329	4	0	0	181	3
3089	23	12	0	0	0	11	0	510	324	0	0	0	182	3
3599	68	36	0	0	0	32	0	1235	785	0	0	0	442	8
4142	33	17	0	0	2	14	0	29	18	0	0	1	9	0
4212	379	198	0	0	23	156	1	2892	1839	0	0	137	900	16
4213	314	164	0	0	19	129	1	1878	1194	0	0	89	584	11
4581	28	15	0	0	2	12	0	93	59	7	0	3	23	0
4911	see Appendix IV							see Appendix IV						
4953	17	9	0	0	0	8	0	177	113	0	0	8	55	1
5012	40	21	0	0	0	19	0	280	178	0	0	13	87	2
5013	164	86	0	0	0	78	0	1181	751	0	0	56	367	7
5015	33	17	0	0	2	14	0	224	142	0	0	11	70	1
5063	72	38	0	0	0	34	0	962	612	0	0	46	299	5
5082	28	15	0	0	0	13	0	208	132	0	0	10	65	1
5083	141	74	0	0	0	67	0	519	330	0	0	25	161	3
5084	77	40	0	0	0	36	0	1811	1152	0	0	86	564	10
5085	64	34	0	0	0	30	0	865	550	0	0	41	269	5
5087	27	14	0	0	0	13	0	376	239	0	0	18	117	2
5169	28	15	0	0	0	13	0	581	369	4	0	27	177	3
5172	29	15	0	0	0	14	0	181	115	0	0	9	56	1
5261	41	21	0	0	0	19	0	438	279	0	0	21	136	2
5411	513	269	0	0	0	243	2	4410	2804	0	0	209	1,372	25
5511	124	65	0	0	8	51	0	1217	774	1	0	57	378	7
5521	102	53	0	0	6	42	0	648	412	0	0	31	202	4
5531	259	136	0	0	16	107	1	1330	846	0	0	63	414	7
5541	540	283	4	0	33	219	1	4174	2654	36	13	191	1,257	23
5551	124	65	0	0	0	59	0	121	77	0	0	6	38	1
5983	6	3	0	0	0	3	0	32	20	0	0	2	10	0
5941	202	106	0	0	0	96	1	898	571	0	0	0	321	6
5999	159	83	0	0	0	75	0	1741	1107	0	0	0	623	11
7261	65	34	0	0	0	31	0	848	539	1	0	0	302	5
7389	150	79	0	0	0	71	0	2540	1615	0	0	0	908	16

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

IDAHO

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7514	34	18	0	0	2	14	0
7515	2	1	0	0	0	1	0
7532	176	92	0	0	11	72	0
7533	23	12	0	0	1	9	0
7537	27	14	0	0	2	11	0
7538	303	159	0	0	19	125	1
7539	53	28	0	0	3	22	0
7542	58	30	0	0	0	27	0
7549	51	27	0	0	3	21	0
7692	32	17	0	0	0	15	0
7694	21	11	0	0	0	10	0
7699	162	85	0	0	0	77	0
7999	179	94	0	0	0	85	1
8062	3	2	0	0	0	1	0
8211	614	321	0	0	0	291	2
8734	22	12	0	0	0	10	0
9111	191	100	0	0	12	79	0
9224	134	70	0	0	0	63	0
Total	**7,442**	**3,897**	**4**	**0**	**165**	**3,355**	**21**

POTW Coverage 52.36%

Wells in SWPA 0.62%

ILLINOIS

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7514	174	111	0	0	8	54	1
7515	49	31	0	0	2	15	0
7532	1788	1137	0	0	85	556	10
7533	358	228	1	0	17	111	2
7537	241	153	0	0	11	75	1
7538	2647	1683	0	0	125	824	15
7539	365	232	0	0	17	114	2
7542	631	401	0	0	0	226	4
7549	569	362	0	0	27	177	3
7692	217	138	0	0	0	78	1
7694	103	65	0	0	0	37	1
7699	1518	965	0	0	0	543	10
7999	714	454	0	0	0	255	5
8062	28	18	0	0	0	10	0
8211	6535	4156	0	0	0	2,337	42
8734	167	106	0	0	0	60	1
9111	2239	1424	0	0	106	697	13
9224	749	476	0	0	0	268	5
Total	**62,716**	**39,881**	**55**	**13**	**1,557**	**20,835**	**375**

POTW Coverage 63.59%

Wells in SWPA 1.77%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding.

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	INDIANA							IOWA						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
0742				see Appendix IV							see Appendix IV			
1521	2824	1775	0	0	0	1,029	21	1222	856	0	0	0	360	6
1541	206	129	0	0	0	75	2	110	77	0	0	0	32	1
1611	197	124	0	0	0	72	1	158	111	0	0	0	47	1
1711	1634	1027	0	0	0	595	12	925	648	0	0	0	272	4
1794	433	272	0	0	0	158	3	111	78	0	0	0	33	1
2752	606	381	0	0	0	221	4	315	221	0	0	0	93	1
2759	173	109	2	0	0	61	1	83	58	1	0	0	23	0
3089	324	204	0	0	0	118	2	98	69	0	0	0	29	0
3599	602	378	0	0	0	219	4	213	149	0	0	0	63	1
4142	22	14	0	0	1	7	0	12	8	0	0	0	3	0
4212	1184	744	0	0	57	375	8	1010	708	0	0	39	259	4
4213	1523	957	0	0	74	483	10	1078	756	0	0	42	276	4
4581	45	28	1	0	2	13	0	41	29	1	0	1	10	0
4911				see Appendix IV							see Appendix IV			
4953	84	53	0	0	0	31	1	37	26	0	0	0	11	0
5012	245	154	0	0	0	89	2	109	76	0	0	0	32	0
5013	751	472	0	0	0	274	6	442	310	0	0	0	130	2
5015	173	109	0	0	8	55	1	97	68	0	0	4	25	0
5063	408	256	0	0	0	149	3	162	114	0	0	0	48	1
5082	94	59	0	0	0	34	1	59	41	0	0	0	17	0
5083	330	207	0	0	0	120	2	574	402	0	0	0	169	3
5084	643	404	0	0	0	234	5	203	142	0	0	0	60	1
5085	401	252	0	0	0	146	3	174	122	0	0	0	51	1
5087	185	116	0	0	0	67	1	70	49	0	0	0	21	0
5169	219	138	1	0	0	79	2	110	77	0	0	0	32	1
5172	79	50	0	0	0	29	1	81	57	0	0	0	24	0
5261	373	234	0	0	0	136	3	174	122	0	0	0	51	1
5411	2167	1362	0	0	0	789	16	1415	992	0	0	0	417	6
5511	603	379	1	0	29	190	4	489	343	0	0	19	125	2
5521	627	394	0	0	30	199	4	248	174	0	0	10	64	1
5531	930	584	0	0	45	295	6	502	352	0	0	20	129	2
5541	2662	1673	59	14	119	781	16	1809	1268	25	2	67	440	7
5551	93	58	0	0	0	34	1	58	41	0	0	0	17	0
5983	48	30	0	0	0	17	0	22	15	0	0	0	6	0
5941	526	331	0	0	0	192	4	263	184	0	0	0	77	1
5999	847	532	0	0	0	308	6	409	287	0	0	0	120	2
7261	530	333	0	0	0	193	4	384	269	0	0	0	113	2
7389	948	596	0	0	0	345	7	439	308	0	0	0	129	2

EPA Staff Draft--Do Not Cite or Quote--Deliberative Material

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	INDIANA							IOWA						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7514	86	54	0	0	4	27	1	39	27	0	0	2	10	0
7515	16	10	0	0	1	5	0	8	6	0	0	0	2	0
7532	894	562	0	0	43	283	6	529	371	0	0	21	136	2
7533	184	116	0	0	9	58	1	79	55	0	0	3	20	0
7537	131	82	0	0	6	42	1	52	36	0	0	2	13	0
7538	1298	816	1	0	63	410	8	776	544	0	0	30	199	3
7539	240	151	0	0	12	76	2	92	64	0	0	4	24	0
7542	325	204	0	0	0	118	2	172	121	0	0	0	51	1
7549	295	185	1	0	14	93	2	93	65	0	0	4	24	0
7692	138	87	0	0	0	50	1	111	78	0	0	0	33	1
7694	62	39	0	0	0	23	0	43	30	0	0	0	13	0
7699	754	474	0	0	0	275	6	474	332	0	0	0	140	2
7999	407	256	0	0	0	148	3	187	131	0	0	0	55	1
8062	5	3	0	0	0	2	0	2	1	0	0	0	1	0
8211	2454	1542	0	0	0	894	18	2412	1691	0	0	0	710	11
8734	68	43	0	0	0	25	1	30	21	0	0	0	9	0
9111	569	358	0	0	27	180	4	938	657	0	0	36	240	4
9224	586	368	0	0	0	213	4	338	237	0	0	0	100	2
Total	32,251	20,267	66	14	545	11,134	226	20,081	14,075	27	2	303	5,587	87

POTW Coverage	Wells in SWPA	POTW Coverage	Wells in SWPA
62.84%	1.99%	70.09%	1.53%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding.

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	KANSAS							KENTUCKY						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	909	716	0	0	0	192	1	1198	561	0	0	0	635	2
1541	88	69	0	0	0	19	0	131	61	0	0	0	69	0
1611	135	106	0	0	0	29	0	208	97	0	0	0	110	0
1711	885	697	0	0	0	187	1	1092	511	0	0	0	579	2
1794	81	64	0	0	0	17	0	248	116	0	0	0	132	0
2752	320	252	0	0	0	68	0	288	135	1	0	0	152	0
2759	76	60	1	0	0	15	0	103	48	0	0	0	55	0
3089	81	64	0	0	0	17	0	87	41	0	0	0	46	0
3599	234	184	0	0	0	49	0	226	106	0	0	0	120	0
4142	19	15	0	0	1	3	0	11	5	0	0	1	5	0
4212	699	550	0	0	19	129	1	1380	646	0	0	95	637	2
4213	672	529	0	0	19	124	1	662	310	0	0	46	305	1
4581	48	38	0	0	1	9	0	29	14	10	0	1	5	0
4911	see Appendix IV							see Appendix IV						
4953	32	25	0	0	0	7	0	58	27	0	0	0	31	0
5012	104	82	0	0	0	22	0	123	58	0	0	0	65	0
5013	344	271	0	0	0	73	0	406	190	0	0	0	215	1
5015	108	85	0	0	3	20	0	139	65	0	0	10	64	0
5063	189	149	0	0	0	40	0	215	101	0	0	0	114	0
5082	61	48	0	0	0	13	0	158	74	0	0	0	84	0
5083	311	245	0	0	0	66	0	193	90	0	0	0	102	0
5084	330	260	0	0	0	70	0	314	147	0	0	0	167	0
5085	198	156	0	0	0	42	0	209	98	0	0	0	111	0
5087	85	67	0	0	0	18	0	102	48	0	0	0	54	0
5169	113	89	1	0	0	23	0	125	59	4	0	0	62	0
5172	73	57	0	0	0	15	0	62	29	0	0	0	33	0
5261	115	91	0	0	0	24	0	153	72	0	0	0	81	0
5411	1156	910	0	0	0	244	1	2617	1225	0	0	0	1,388	4
5511	332	261	0	0	9	61	0	413	193	6	0	28	185	1
5521	232	183	0	0	6	43	0	387	181	0	0	27	179	0
5531	513	404	0	0	14	94	0	804	376	0	0	56	371	1
5541	1422	1120	9	0	38	254	1	2030	950	141	5	121	810	2
5551	332	261	0	0	0	70	0	64	30	0	0	0	34	0
5941	237	187	0	0	0	50	0	304	142	0	0	0	161	0
5983	11	9	0	0	0	2	0	29	14	0	0	0	15	0
5999	368	290	0	0	0	78	0	474	222	0	0	0	251	1
7261	239	188	0	0	0	51	0	365	171	3	0	0	191	1
7389	425	335	0	0	0	90	0	427	200	0	0	0	226	1

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

KANSAS

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7514	35	28	0	0	1	6	0
7515	7	6	0	0	0	1	0
7532	462	364	0	0	13	85	0
7533	45	35	0	0	1	8	0
7537	46	36	0	0	1	8	0
7538	757	596	1	0	21	138	1
7539	120	94	0	0	3	22	0
7542	140	110	0	0	0	30	0
7549	90	71	0	0	2	17	0
7692	86	68	0	0	0	18	0
7694	31	24	0	0	0	7	0
7699	402	317	0	0	0	85	0
7999	185	146	0	0	0	39	0
8062	5	4	0	0	0	1	0
8211	1888	1487	0	0	0	399	2
8734	34	27	0	0	0	7	0
9111	1214	956	0	0	34	223	1
9224	378	298	0	0	0	80	0
Total	**17,502**	**13,781**	**12**	**0**	**187**	**3,503**	**18**

POTW Coverage 78.74%

Wells in SWPA 0.52%

KENTUCKY

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7514	58	27	0	0	4	27	0
7515	10	5	0	0	1	5	0
7532	450	211	0	0	31	208	1
7533	71	33	1	0	5	32	0
7537	77	36	0	0	5	36	0
7538	724	339	6	0	49	329	1
7539	130	61	1	0	9	59	0
7542	177	83	0	0	0	94	0
7549	136	64	1	0	9	62	0
7692	74	35	0	0	0	39	0
7694	56	26	0	0	0	30	0
7699	422	198	0	0	0	224	1
7999	253	118	0	0	0	134	0
8062	23	11	0	0	0	12	0
8211	2291	1073	0	0	0	1,215	3
8734	69	32	0	0	0	37	0
9111	373	175	0	0	26	172	0
9224	479	224	0	0	0	254	1
Total	**21,707**	**10,163**	**174**	**5**	**523**	**10,813**	**29**

POTW Coverage 46.82%

Wells in SWPA 0.27%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	LOUISIANA							MAINE						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	807	555	0	0	0	247	5	940	428	0	0	0	507	5
1541	147	101	0	0	0	45	1	50	23	0	0	0	27	0
1611	132	91	0	0	0	40	1	70	32	0	0	0	38	0
1711	1006	692	0	0	0	308	6	495	226	0	0	0	267	3
1794	81	56	0	0	0	25	0	227	103	0	0	0	122	1
2752	273	188	0	0	0	83	2	124	57	0	0	0	67	1
2759	97	67	0	0	0	30	1	39	18	0	0	0	21	0
3089	38	26	0	0	0	12	0	25	11	0	0	0	13	0
3599	276	190	2	0	0	82	2	96	44	0	0	0	52	1
4142	17	12	0	0	1	5	0	4	2	0	0	0	2	0
4212	710	489	0	0	29	189	4	413	188	0	0	29	194	2
4213	625	430	0	0	25	166	3	346	158	0	0	24	162	2
4581	36	25	4	0	1	6	0	23	10	1	0	1	10	0
4911	see Appendix IV							see Appendix IV						
4953	56	39	0	0	0	17	0	45	21	0	0	0	24	0
5012	88	61	0	0	0	27	1	46	21	0	0	0	25	0
5013	436	300	0	0	0	133	3	165	75	0	0	0	89	1
5015	94	65	0	0	4	25	0	33	15	0	0	2	15	0
5063	322	222	0	0	0	98	2	64	29	0	0	0	35	0
5082	73	50	0	0	0	22	0	29	13	0	0	0	16	0
5083	157	108	0	0	0	48	1	47	21	0	0	0	25	0
5084	788	542	0	0	0	241	5	71	32	0	0	0	38	0
5085	402	277	0	0	0	123	2	77	35	0	0	0	42	0
5087	130	89	0	0	0	40	1	27	12	0	0	0	15	0
5169	256	176	10	0	0	68	1	26	12	0	0	0	14	0
5172	89	61	0	0	0	27	1	21	10	0	0	0	11	0
5261	172	118	0	0	0	53	1	79	36	0	0	0	43	0
5411	3063	2108	0	0	0	937	19	1114	508	0	0	0	601	6
5511	345	237	3	0	14	89	2	172	78	0	0	12	81	1
5521	212	146	0	0	9	56	1	116	53	0	0	8	54	1
5531	779	536	0	0	32	207	4	206	94	0	0	15	97	1
5541	1728	1189	49	0	64	418	8	666	303	3	0	47	310	3
5551	105	72	0	0	0	32	1	46	21	0	0	0	25	0
5941	248	171	0	0	0	76	2	165	75	0	0	0	89	1
5983	3	2	0	0	0	1	0	201	92	0	0	0	108	1
5999	568	391	0	0	0	174	3	210	96	0	0	0	113	1
7261	269	185	0	0	0	82	2	101	46	0	0	0	54	1
7389	681	469	0	0	0	208	4	210	96	0	0	0	113	1

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

LOUISIANA

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7514	67	46	0	0	3	18	0
7515	8	6	0	0	0	2	0
7532	392	270	0	0	16	104	2
7533	96	66	2	0	4	24	0
7537	103	71	0	0	4	27	1
7538	866	596	5	0	34	226	4
7539	198	136	1	0	8	52	1
7542	98	67	0	0	0	30	1
7549	177	122	2	0	7	45	1
7692	117	81	0	0	0	36	1
7694	55	38	0	0	0	17	0
7699	716	493	0	0	0	219	4
7999	287	197	0	0	0	88	2
8062	40	28	0	0	0	12	0
8211	3358	2311	0	0	0	1,027	20
8734	133	92	0	0	0	41	1
9111	260	179	0	0	11	69	1
9224	660	454	0	0	0	202	4
Total	**22,940**	**15,785**	**78**		**264**	**6,681**	**133**

POTW Coverage 68.81%

Wells in SWPA 1.95%

MAINE

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7514	22	10	0	0	2	10	0
7515	3	1	0	0	0	1	0
7532	168	77	0	0	12	79	1
7533	27	12	0	0	2	13	0
7537	15	7	0	0	1	7	0
7538	361	165	0	0	26	169	2
7539	40	18	0	0	3	19	0
7542	44	20	0	0	0	24	0
7549	34	15	0	0	2	16	0
7692	29	13	0	0	0	16	0
7694	13	6	0	0	0	7	0
7699	160	73	0	0	0	86	1
7999	203	93	0	0	0	109	1
8062	0	0	0	0	0	0	0
8211	689	314	0	0	0	371	4
8734	24	11	0	0	0	13	0
9111	740	337	0	0	52	347	3
9224	79	36	0	0	0	43	0
Total	**9,440**	**4,302**	**4**	**0**	**239**	**4,848**	**47**

POTW Coverage 45.57%

Wells in SWPA 0.96%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Appendix II

Community & Non-transient Non-communityGround Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	MARYLAND							MASSACHUSETTS						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	2941	1646	0	0	0	1,230	65	2151	886	0	0	0	1,189	38
1541	59	33	0	0	0	25	1	145	60	0	0	0	80	3
1611	180	101	0	0	0	75	4	230	95	0	0	0	127	4
1711	1752	981	0	0	0	733	39	1915	789	0	0	0	1,059	34
1794	358	200	0	0	0	150	8	454	187	0	0	0	251	8
2752	539	302	2	0	0	223	12	759	313	2	0	0	418	13
2759	138	77	1	0	0	57	3	230	95	1	0	0	126	4
3089	73	41	0	0	0	31	2	269	111	0	0	0	149	5
3599	198	111	0	0	0	83	4	699	288	0	0	0	386	12
4142	27	15	0	0	2	10	1	17	7	0	0	1	8	0
4212	873	489	0	0	50	318	17	867	357	0	0	66	417	13
4213	498	279	0	0	28	181	10	551	227	0	0	42	265	8
4581	30	17	4	0	1	8	0	40	16	2	0	3	18	1
4911	see Appendix IV							see Appendix IV						
4953	53	30	0	0	0	22	1	91	38	0	0	0	50	2
5012	128	72	0	0	0	54	3	122	50	0	0	0	67	2
5013	440	246	0	0	0	184	10	672	277	0	0	0	371	12
5015	90	50	0	0	5	33	2	158	65	0	0	12	76	2
5063	305	171	0	0	0	128	7	487	201	0	0	0	269	9
5082	86	48	0	0	0	36	2	73	30	0	0	0	40	1
5083	88	49	0	0	0	37	2	76	31	0	0	0	42	1
5084	309	173	0	0	0	129	7	652	269	0	0	0	360	11
5085	185	104	0	0	0	77	4	311	128	0	0	0	172	5
5087	141	79	0	0	0	59	3	164	68	0	0	0	91	3
5169	138	77	8	0	0	50	3	165	68	2	0	0	89	3
5172	34	19	0	0	0	14	1	62	26	0	0	0	34	1
5261	209	117	0	0	0	87	5	211	87	0	0	0	117	4
5411	2344	1312	0	0	0	980	52	2784	1147	0	0	0	1,539	49
5511	381	213	17	0	20	125	7	620	256	2	0	47	297	9
5521	194	109	0	0	11	71	4	300	124	1	0	23	143	5
5531	592	331	0	0	34	215	11	573	236	0	0	44	276	9
5541	1741	975	20	27	94	594	31	2463	1015	70	113	164	1,035	33
5551	150	84	0	0	0	63	3	94	39	0	0	0	52	2
5941	488	273	0	0	0	204	11	543	224	0	0	0	300	10
5983	123	69	0	0	0	51	3	642	265	0	0	0	355	11
5999	804	450	0	0	0	336	18	897	370	0	0	0	496	16
7261	192	107	0	0	0	80	4	460	190	0	0	0	254	8
7389	1020	571	0	0	0	426	23	1090	449	0	0	0	602	19

Appendix II

Community & Non-transient Non-communityGround Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

MARYLAND

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7514	90	50	0	0	5	33	2
7515	21	12	0	0	1	8	0
7532	561	314	1	0	32	203	11
7533	84	47	2	0	5	29	2
7537	98	55	0	0	6	36	2
7538	1200	672	7	0	68	431	23
7539	132	74	0	0	8	48	3
7542	170	95	0	0	0	71	4
7549	215	120	1	0	12	77	4
7692	68	38	0	0	0	28	2
7694	21	12	0	0	0	9	0
7699	658	368	0	0	0	275	15
7999	444	249	0	0	0	186	10
8062	2	1	0	0	0	1	0
8211	1872	1048	0	0	0	783	41
8734	90	50	0	0	0	38	2
9111	178	100	0	0	10	65	3
9224	206	115	0	0	0	86	5
Total	**24,011**	**13,441**	**63**	**27**	**391**	**9,583**	**506**

POTW Coverage 55.98%

Wells in SWPA 5.02%

MASSACHUSETTS

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells ~
7514	128	53	0	0	10	62	2
7515	31	13	0	0	2	15	0
7532	1032	425	0	0	79	496	16
7533	120	49	0	0	9	58	2
7537	108	45	0	0	8	52	2
7538	1457	600	4	0	111	697	22
7539	174	72	1	0	13	83	3
7542	228	94	0	0	0	126	4
7549	215	89	0	0	16	103	3
7692	83	34	0	0	0	46	1
7694	43	18	0	0	0	24	1
7699	750	309	0	0	0	415	13
7999	537	221	0	0	0	297	9
8062	2	1	0	0	0	1	0
8211	2765	1139	0	0	0	1,528	49
8734	120	49	0	0	0	66	2
9111	643	265	0	0	49	309	10
9224	300	124	0	0	0	166	5
Total	**30,773**	**12,682**	**85**	**113**	**701**	**16,165**	**514**

POTW Coverage 41.21%

Wells in SWPA 5.98%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding

~ Class V Wells are strictly regulatedin Massachusetts, therefore, 50% of potential wells are removed from the analysis.

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database,

Appendix II

Community & Non-transient Non-communityGround Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	MICHIGAN							MINNESOTA						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	4331	1884	0	0	0	2,396	25	1905	1177	0	0	0	721	7
1541	293	127	0	0	0	162	2	112	69	0	0	0	42	0
1611	309	134	0	0	0	171	2	274	169	0	0	0	104	1
1711	2641	1149	0	0	0	1,461	15	1305	806	0	0	0	494	5
1794	619	269	0	0	0	342	4	296	183	0	0	0	112	1
2752	1032	449	0	0	0	571	6	674	417	0	0	0	255	2
2759	310	135	1	0	0	171	2	175	108	2	0	0	64	1
3089	609	265	0	0	0	337	4	217	134	0	0	0	82	1
3599	1395	607	0	0	0	772	8	545	337	0	0	0	206	2
4142	21	9	0	0	2	10	0	27	17	0	0	1	9	0
4212	1481	644	0	0	109	713	8	1277	789	0	0	63	420	4
4213	1206	525	0	0	89	580	6	831	514	0	0	41	273	3
4581	101	44	4	0	7	45	0	60	37	3	0	3	17	0
4911	see Appendix IV							see Appendix IV						
4953	143	62	0	0	0	79	1	74	46	0	0	0	28	0
5012	266	116	0	0	0	147	2	148	91	0	0	0	56	1
5013	1349	587	0	0	0	746	8	559	345	0	0	0	211	2
5015	251	109	0	0	18	121	1	124	77	0	0	6	41	0
5063	594	258	0	0	0	329	3	360	222	0	0	0	136	1
5082	135	59	0	0	0	75	1	108	67	0	0	0	41	0
5083	287	125	0	0	0	159	2	483	298	0	0	0	183	2
5084	1351	588	0	0	0	747	8	537	332	0	0	0	203	2
5085	671	292	0	0	0	371	4	293	181	0	0	0	111	1
5087	250	109	0	0	0	138	1	113	70	0	0	0	43	0
5169	348	151	2	0	0	191	2	160	99	4	0	0	57	1
5172	95	41	0	0	0	53	1	68	42	0	0	0	26	0
5261	464	202	0	0	0	257	3	222	137	0	0	0	84	1
5411	5251	2285	0	0	0	2,905	31	1801	1113	0	0	0	681	7
5511	886	385	1	0	65	426	4	555	343	0	0	28	183	2
5521	502	218	0	0	37	242	3	201	124	0	0	10	66	1
5531	1398	608	0	0	103	673	7	575	355	0	0	29	189	2
5541	3994	1738	7	16	290	1,903	20	2310	1428	25	2	111	737	7
5551	234	102	0	0	0	129	1	117	72	0	0	0	44	0
5941	951	414	0	0	0	526	6	556	344	0	0	0	210	2
5983	116	50	0	0	0	64	1	71	44	0	0	0	27	0
5999	1399	609	0	0	0	774	8	699	432	0	0	0	264	3
7261	590	257	0	0	0	326	3	303	187	0	0	0	115	1
7389	1550	674	0	0	0	857	9	984	608	0	0	0	372	4

EPA Staff Draft--Do Not Cite or Quote--Deliberative Material

Appendix II

Community & Non-transient Non-communityGround Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

MICHIGAN

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells ~
7514	135	59	0	0	10	65	1
7515	34	15	0	0	2	16	0
7532	1465	637	0	0	108	705	7
7533	389	169	0	0	29	187	2
7537	219	95	0	0	16	105	1
7538	1946	847	2	0	143	935	10
7539	385	168	0	0	28	185	2
7542	618	269	0	0	0	342	4
7549	567	247	0	0	42	273	3
7692	201	87	0	0	0	111	1
7694	94	41	0	0	0	52	1
7699	1264	550	0	0	0	699	7
7999	267	116	0	0	0	148	2
8062	0	0	0	0	0	0	0
8211	6476	2818	0	0	0	3,583	38
8734	136	59	0	0	0	75	1
9111	1054	459	0	0	77	507	5
9224	903	393	0	0	0	500	5
Total	53,576	23,311	17	16	1,174	28,457	301

POTW Coverage 43.51%

Wells in SWPA 2.07%

MINNESOTA

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside of SWPA	Total Number of Wells
7514	50	31	0	0	2	16	0
7515	18	11	0	0	1	6	0
7532	651	402	1	0	32	213	2
7533	88	54	0	0	4	29	0
7537	76	47	0	0	4	25	0
7538	1014	627	1	0	50	333	3
7539	132	82	0	0	7	43	0
7542	213	132	0	0	0	81	1
7549	187	116	0	0	9	62	1
7692	126	78	0	0	0	48	0
7694	44	27	0	0	0	17	0
7699	657	406	0	0	0	249	2
7999	460	284	0	0	0	174	2
8062	0	0	0	0	0	0	0
8211	2945	1820	0	0	0	1,114	11
8734	65	40	0	0	0	25	0
9111	1865	1153	0	0	93	614	6
9224	373	231	0	0	0	141	1
Total	28,083	17,355	36	2	494	10,096	99

POTW Coverage 61.80%

Wells in SWPA 0.97%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding.

~ Class V Wells are strictly regulated in Michigan, therefore, 50% of potential wells are removed from the analysis.

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database,

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	MISSISSIPPI							MISSOURI						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	599	302	0	0	0	292	5	2330	1803	0	0	0	521	6
1541	125	63	0	0	0	61	1	197	152	0	0	0	44	1
1611	137	69	0	0	0	67	1	188	145	0	0	0	42	1
1711	590	297	0	0	0	288	5	1698	1314	0	0	0	379	5
1794	103	52	0	0	0	50	1	307	238	0	0	0	69	1
2752	162	82	0	0	0	79	1	665	515	2	0	0	147	2
2759	47	24	0	0	0	23	0	211	163	1	0	0	46	1
3089	62	31	0	0	0	30	1	155	120	0	0	0	35	0
3599	129	65	0	0	0	63	1	388	300	0	0	0	87	1
4142	21	11	0	0	1	9	0	15	12	0	0	0	3	0
4212	628	316	0	0	41	267	5	1466	1135	0	0	43	285	3
4213	653	329	0	0	42	277	5	1492	1155	0	0	44	290	3
4581	25	13	5	0	1	6	0	58	45	11	0	0	2	0
4911	see Appendix IV							see Appendix IV						
4953	24	12	0	0	0	12	0	79	61	0	0	0	18	0
5012	91	46	0	0	0	44	1	244	189	0	0	0	55	1
5013	299	151	0	0	0	146	3	709	549	0	0	0	158	2
5015	82	41	0	0	5	35	1	211	163	0	0	6	41	0
5063	118	59	0	0	0	58	1	417	323	0	0	0	93	1
5082	48	24	0	0	0	23	0	117	91	0	0	0	26	0
5083	167	84	0	0	0	81	1	385	298	0	0	0	86	1
5084	168	85	0	0	0	82	1	562	435	0	0	0	126	1
5085	137	69	0	0	0	67	1	348	269	0	0	0	78	1
5087	56	28	0	0	0	27	0	187	145	0	0	0	42	0
5169	69	35	2	0	0	32	1	240	186	0	0	0	54	1
5172	45	23	0	0	0	22	0	107	83	0	0	0	24	0
5261	123	62	0	0	0	60	1	250	193	0	0	0	56	1
5411	2222	1119	0	0	0	1,084	19	2519	1949	0	0	0	563	7
5511	253	127	3	0	16	105	2	663	513	4	0	19	125	1
5521	289	145	0	0	19	123	2	506	392	0	0	15	98	1
5531	709	357	0	0	46	301	5	942	729	0	0	28	183	2
5541	1301	655	28	0	80	528	9	2874	2224	133	5	67	439	5
5551	39	20	0	0	0	19	0	118	91	0	0	0	26	0
5941	166	84	0	0	0	81	1	457	354	0	0	0	102	1
5983	12	6	0	0	0	6	0	18	14	0	0	0	4	0
5999	275	138	0	0	0	134	2	856	662	0	0	0	191	2
7261	253	127	0	0	0	123	2	502	388	1	0	0	111	1
7389	218	110	0	0	0	106	2	972	752	0	0	0	217	3

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

MISSISSIPPI

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
7514	35	18	0	0	2	15	0
7515	2	1	0	0	0	1	0
7532	284	143	0	0	18	121	2
7533	53	27	0	0	3	22	0
7537	52	26	0	0	3	22	0
7538	596	300	2	0	38	251	4
7539	126	63	0	0	8	53	1
7542	61	31	0	0	0	30	1
7549	63	32	0	0	4	27	0
7692	97	49	0	0	0	47	1
7694	25	13	0	0	0	12	0
7699	317	160	0	0	0	155	3
7999	127	64	0	0	0	62	1
8062	14	7	0	0	0	7	0
8211	1271	640	0	0	0	620	11
8734	34	17	0	0	0	17	0
9111	270	136	0	0	17	115	2
9224	362	182	0	0	0	177	3
Total	**14,234**	**7,165**	**40**	**0**	**346**	**6,566**	**116**

POTW Coverage 50.34%

Wells in SWPA 1.74%

MISSOURI

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
7514	79	61	0	0	2	15	0
7515	15	12	0	0	0	3	0
7532	850	658	0	0	25	165	2
7533	159	123	1	0	5	30	0
7537	141	109	0	0	4	27	0
7538	1512	1170	3	0	44	291	3
7539	205	159	0	0	6	40	0
7542	291	225	0	0	0	65	1
7549	219	169	0	0	6	43	1
7692	129	100	0	0	0	29	0
7694	48	37	0	0	0	11	0
7699	757	586	0	0	0	169	2
7999	487	377	0	0	0	109	1
8062	11	9	0	0	0	2	0
8211	3470	2685	0	0	0	775	9
8734	62	48	0	0	0	14	0
9111	910	704	0	0	27	177	2
9224	677	524	0	0	0	151	2
Total	**33,475**	**25,906**	**156**	**5**	**342**	**6,982**	**83**

POTW Coverage 77.39%

Wells in SWPA 1.18%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding.

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

EPA Staff Draft--Do Not Cite or Quote--Deliberative Material

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	MONTANA							NEBRASKA						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	645	415	0	0	0	230	1	691	514	0	0	0	176	1
1541	31	20	0	0	0	11	0	80	60	0	0	0	20	0
1611	90	58	0	0	0	32	0	69	51	0	0	0	18	0
1711	277	178	0	0	0	99	0	621	462	0	0	0	158	1
1794	69	44	0	0	0	25	0	85	63	0	0	0	22	0
2752	79	51	0	0	0	28	0	194	144	0	0	0	49	0
2759	0	0	0	0	0	0	0	58	43	0	0	0	15	0
3089	0	0	0	0	0	0	0	33	25	0	0	0	8	0
3599	50	32	0	0	0	18	0	117	87	1	0	0	29	0
4142	7	4	0	0	0	2	0	37	28	0	0	1	8	0
4212	297	191	0	0	14	92	0	545	406	0	0	18	121	1
4213	321	206	0	0	15	99	0	737	549	0	0	24	163	1
4581	25	16	0	0	1	8	0	27	20	3	0	1	3	0
4911	see Appendix IV							see Appendix IV						
4953	12	8	0	0	0	4	0	40	30	0	0	0	10	0
5012	40	26	0	0	0	14	0	76	57	0	0	0	19	0
5013	148	95	0	0	0	53	0	246	183	0	0	0	63	0
5015	24	15	0	0	1	7	0	57	42	0	0	2	13	0
5063	48	31	0	0	0	17	0	113	84	0	0	0	29	0
5082	37	24	0	0	0	13	0	37	28	0	0	0	9	0
5083	99	64	0	0	0	35	0	348	259	0	0	0	88	1
5084	65	42	0	0	0	23	0	115	86	0	0	0	29	0
5085	39	25	0	0	0	14	0	89	66	0	0	0	23	0
5087	34	22	0	0	0	12	0	40	30	0	0	0	10	0
5169	30	19	0	0	0	11	0	58	43	0	0	0	15	0
5172	20	13	0	0	0	7	0	63	47	0	0	0	16	0
5261	26	17	0	0	0	9	0	93	69	0	0	0	24	0
5411	520	334	0	0	0	185	1	775	577	0	0	0	197	1
5511	141	91	1	0	6	43	0	224	167	0	0	7	50	0
5521	63	40	0	0	3	20	0	198	147	0	0	7	44	0
5531	173	111	0	0	8	54	0	311	231	0	0	10	69	0
5541	501	322	0	0	23	155	0	1011	752	32	0	29	196	1
5551	14	9	0	0	0	5	0	24	18	0	0	0	6	0
5941	161	103	0	0	0	57	0	174	130	0	0	0	44	0
5983	5	3	0	0	0	2	0	14	10	0	0	0	4	0
5999	147	94	0	0	0	52	0	245	182	0	0	0	62	0
7261	50	32	0	0	0	18	0	182	135	0	0	0	46	0
7389	138	89	0	0	0	49	0	319	237	0	0	0	81	0

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

MONTANA

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
7514	34	22	0	0	2	11	0
7515	1	1	0	0	0	0	0
7532	166	107	0	0	8	51	0
7533	25	16	0	0	1	8	0
7537	21	13	0	0	1	7	0
7538	245	157	0	0	11	76	0
7539	46	30	0	0	2	14	0
7542	58	37	0	0	0	21	0
7549	42	27	0	0	2	13	0
7692	46	30	0	0	0	16	0
7694	8	5	0	0	0	3	0
7699	148	95	0	0	0	53	0
7999	259	166	0	0	0	92	0
8062	1	1	0	0	0	0	0
8211	748	481	0	0	0	266	1
8734	19	12	0	0	0	7	0
9111	161	103	0	0	7	50	0
9224	122	78	0	0	0	43	0
Total	**6,576**	**4,227**	**1**	**0**	**106**	**2,235**	**7**

POTW Coverage 64.28%

Wells in SWPA 0.29%

NEBRASKA

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
7514	26	19	0	0	1	6	0
7515	8	6	0	0	0	2	0
7532	359	267	0	0	12	79	0
7533	32	24	0	0	1	7	0
7537	41	31	0	0	1	9	0
7538	520	387	2	0	17	113	1
7539	52	39	0	0	2	12	0
7542	122	91	0	0	0	31	0
7549	60	45	0	0	2	13	0
7692	86	64	0	0	0	22	0
7694	20	15	0	0	0	5	0
7699	286	213	0	0	0	73	0
7999	134	100	0	0	0	34	0
8062	1	1	0	0	0	0	0
8211	1821	1355	0	0	0	463	3
8734	16	12	0	0	0	4	0
9111	872	649	0	0	29	193	1
9224	227	169	0	0	0	58	0
Total	**12,829**	**9,549**	**38**	**0**	**165**	**3,060**	**18**

POTW Coverage 74.43%

Wells in SWPA 0.57%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding.

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biennial Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	NEVADA							NEW HAMPSHIRE						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	507	433	0	0	0	74	0	728	372	0	0	0	334	22
1541	18	15	0	0	0	3	0	60	31	0	0	0	28	2
1611	72	61	0	0	0	11	0	69	35	0	0	0	32	2
1711	370	316	0	0	0	54	0	430	220	0	0	0	197	13
1794	92	79	0	0	0	13	0	170	87	0	0	0	78	5
2752	104	89	0	0	0	15	0	151	77	0	0	0	69	4
2759	41	35	0	0	0	6	0	44	22	0	0	0	20	1
3089	41	35	0	0	0	6	0	54	28	0	0	0	25	2
3599	53	45	0	0	0	8	0	183	94	0	0	0	84	5
4142	19	16	0	0	0	2	0	53	27	0	0	3	21	1
4212	145	124	0	0	3	18	0	194	99	0	0	12	78	5
4213	148	126	0	0	3	19	0	158	81	0	0	10	63	4
4581	30	26	1	0	0	3	0	18	9	0	0	1	7	0
4911	see Appendix IV							see Appendix IV						
4953	34	29	0	0	0	5	0	34	17	0	0	0	16	1
5012	27	23	0	0	0	4	0	38	19	0	0	0	17	1
5013	122	104	0	0	0	18	0	156	80	0	0	0	72	5
5015	36	31	0	0	1	5	0	26	13	0	0	2	10	1
5063	96	82	0	0	0	14	0	110	56	0	0	0	51	3
5082	54	46	0	0	0	8	0	31	16	0	0	0	14	1
5083	22	19	0	0	0	3	0	23	12	0	0	0	11	1
5084	61	52	0	0	0	9	0	144	74	0	0	0	66	4
5085	61	52	0	0	0	9	0	63	32	0	0	0	29	2
5087	64	55	0	0	0	9	0	30	15	0	0	0	14	1
5169	36	31	0	0	0	5	0	53	27	0	0	0	24	2
5172	25	21	0	0	0	4	0	16	8	0	0	0	7	0
5261	39	33	0	0	0	6	0	65	33	0	0	0	30	2
5411	579	494	0	0	0	85	0	813	416	0	0	0	373	24
5511	91	78	1	0	2	11	0	177	90	0	0	11	71	5
5521	100	85	0	0	2	13	0	87	44	0	0	6	35	2
5531	206	176	0	0	4	26	0	137	70	0	0	9	55	4
5541	380	324	10	2	6	38	0	524	268	10	10	31	193	12
5551	18	15	0	0	0	3	0	28	14	0	0	0	13	1
5941	132	113	0	0	0	19	0	198	101	0	0	0	91	6
5983	6	5	0	0	0	1	0	129	66	0	0	0	59	4
5999	245	209	0	0	0	36	0	209	107	0	0	0	96	6
7261	24	20	0	0	0	4	0	70	36	0	0	0	32	2
7389	451	385	0	0	0	66	0	209	107	0	0	0	96	6

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	NEVADA							NEW HAMPSHIRE						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
7514	63	54	0	0	1	8	0	27	14	0	0	2	11	1
7515	4	3	0	0	0	1	0	4	2	0	0	0	2	0
7532	160	137	0	0	3	20	0	172	88	0	0	11	69	4
7533	19	16	0	0	0	2	0	15	8	0	0	1	6	0
7537	51	44	0	0	1	6	0	21	11	0	0	1	8	1
7538	364	311	0	0	7	46	0	351	179	0	0	22	140	9
7539	69	59	0	0	1	9	0	38	19	0	0	2	15	1
7542	74	63	0	0	0	11	0	44	22	0	0	0	20	1
7549	81	69	0	0	2	10	0	46	24	0	0	3	18	1
7692	17	15	0	0	0	2	0	23	12	0	0	0	11	1
7694	8	7	0	0	0	1	0	11	6	0	0	0	5	0
7699	172	147	0	0	0	25	0	177	90	0	0	0	81	5
7999	280	239	0	0	0	41	0	156	80	0	0	0	72	5
8062	6	5	0	0	0	1	0	2	1	0	0	0	1	0
8211	440	376	0	0	0	64	0	652	333	0	0	0	299	19
8734	34	29	0	0	0	5	0	29	15	0	0	0	13	1
9111	30	26	0	0	1	4	0	390	199	0	0	25	156	10
9224	31	26	0	0	0	5	0	37	19	0	0	0	17	1
Total	**6,452**	**5,507**	**12**	**2**	**36**	**893**	**2**	**7,877**	**4,027**	**10**	**10**	**152**	**3,455**	**223**

POTW Coverage	Wells in SWPA	POTW Coverage	Wells in SWPA
85.36%	0.18%	51.12%	6.05%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding.

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	NEW JERSEY							NEW MEXICO						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	3394	1598	0	0	0	1,593	51	1015	653	0	0	0	361	1
1541	270	127	0	0	0	127	4	70	45	0	0	0	25	0
1611	335	158	0	0	0	157	5	51	33	0	0	0	18	0
1711	3031	1427	0	0	0	1,422	45	498	320	0	0	0	177	1
1794	463	218	0	0	0	217	7	60	39	0	0	0	21	0
2752	1092	514	4	0	0	509	16	125	80	0	0	0	44	0
2759	382	180	6	0	0	174	6	37	24	0	0	0	13	0
3089	334	157	0	0	0	157	5	16	10	0	0	0	6	0
3599	700	330	0	0	0	329	10	99	64	0	0	0	35	0
4142	61	29	0	0	4	25	1	102	66	0	0	5	32	0
4212	1968	927	0	0	135	804	26	189	122	0	0	9	58	0
4213	1231	580	0	0	85	503	16	221	142	0	0	10	68	0
4581	69	32	5	0	3	25	1	34	22	0	0	2	11	0
4911	see Appendix IV							see Appendix IV						
4953	115	54	0	0	0	54	2	16	10	0	0	0	6	0
5012	265	125	0	0	0	124	4	37	24	0	0	0	13	0
5013	812	382	0	0	0	381	12	138	89	0	0	0	49	0
5015	182	86	0	0	13	74	2	48	31	0	0	2	15	0
5063	688	324	0	0	0	323	10	101	65	0	0	0	36	0
5082	103	48	0	0	0	48	2	37	24	0	0	0	13	0
5083	103	48	0	0	0	48	2	40	26	0	0	0	14	0
5084	1128	531	0	0	0	529	17	189	122	0	0	0	67	0
5085	588	277	0	0	0	276	9	64	41	0	0	0	23	0
5087	266	125	0	0	0	125	4	50	32	0	0	0	18	0
5169	621	292	12	0	0	281	9	69	44	0	0	0	25	0
5172	132	62	0	0	0	62	2	37	24	0	0	0	13	0
5261	324	153	0	0	0	152	5	36	23	0	0	0	13	0
5411	4122	1941	0	0	0	1,934	62	694	446	0	0	0	247	1
5511	816	384	6	0	55	329	11	160	103	0	0	7	49	0
5521	345	162	1	0	23	140	4	121	78	0	0	6	37	0
5531	850	400	0	0	58	347	11	313	201	0	0	15	97	0
5541	3259	1534	257	91	157	1,081	35	692	445	6	0	31	209	1
5551	142	67	0	0	0	67	2	10	6	0	0	0	4	0
5941	612	288	0	0	0	287	9	144	93	0	0	0	51	0
5983	409	193	0	0	0	192	6	6	4	0	0	0	2	0
5999	1237	582	0	0	0	581	19	337	217	0	0	0	120	0
7261	509	240	0	0	0	239	8	60	39	0	0	0	21	0
7389	1875	883	0	0	0	880	28	256	165	0	0	0	91	0

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

NEW JERSEY

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells ~
7514	166	78	0	0	11	68	2
7515	59	28	0	0	4	24	1
7532	1283	604	1	0	88	523	17
7533	161	76	1	0	11	65	2
7537	217	102	0	0	15	89	3
7538	2029	955	2	0	139	827	26
7539	246	116	1	0	17	100	3
7542	411	193	0	0	0	193	6
7549	322	152	0	0	22	131	4
7692	124	58	0	0	0	58	2
7694	62	29	0	0	0	29	1
7699	1198	564	0	0	0	562	18
7999	731	344	0	0	0	343	11
8062	0	0	0	0	0	0	0
8211	2754	1297	0	0	0	1,292	41
8734	182	86	0	0	0	85	3
9111	845	398	0	0	58	345	11
9224	1006	474	0	0	0	472	15
Total	**44,629**	**21,011**	**296**	**91**	**899**	**19,803**	**632**

POTW Coverage 47.08%

Wells in SWPA 11.32%

NEW MEXICO

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
7514	32	21	0	0	1	10	0
7515	0	0	0	0	0	0	0
7532	185	119	0	0	9	57	0
7533	30	19	0	0	1	9	0
7537	86	55	0	0	4	27	0
7538	421	271	0	0	20	130	0
7539	86	55	0	0	4	27	0
7542	79	51	0	0	0	28	0
7549	81	52	0	0	4	25	0
7692	58	37	0	0	0	21	0
7694	12	8	0	0	0	4	0
7699	217	140	0	0	0	77	0
7999	137	88	0	0	0	49	0
8062	5	3	0	0	0	2	0
8211	1346	866	0	0	0	479	2
8734	30	19	0	0	0	11	0
9111	150	96	0	0	7	46	0
9224	187	120	0	0	0	66	0
Total	**9,314**	**5,991**	**6**	**0**	**136**	**3,170**	**11**

POTW Coverage 64.32%

Wells in SWPA 0.35%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding.

~ Class V Wells are prohibited in New Jersey, therefore, 75% of potential wells are removed from the analysis because it is unknown how effective the ban is in practice.

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

EPA Staff Draft--Do Not Cite or Quote--Deliberative Material

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	NEW YORK							NORTH CAROLINA						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	6638	5677	0	0	0	922	40	3365	1276	0	0	0	2,024	33
1541	411	351	0	0	0	57	2	190	72	0	0	0	114	2
1611	536	458	0	0	0	74	3	324	123	0	0	0	195	3
1711	5026	4298	0	0	0	698	30	2541	964	0	0	0	1,528	25
1794	884	756	0	0	0	123	5	379	144	0	0	0	228	4
2752	2055	1757	1	0	0	284	12	678	257	1	0	0	407	7
2759	670	573	0	0	0	93	4	218	83	2	0	0	129	2
3089	444	380	0	0	0	62	3	196	74	0	0	0	118	2
3599	959	820	0	0	0	133	6	551	209	0	0	0	331	5
4142	68	58	0	0	1	8	0	31	12	0	0	3	16	0
4212	2956	2528	0	0	56	357	15	1298	492	0	0	105	679	11
4213	1436	1228	0	0	27	173	7	1380	523	0	0	111	722	12
4581	121	103	3	0	2	12	1	78	30	6	0	6	36	1
4911	see Appendix IV							see Appendix IV						
4953	182	156	0	0	0	25	1	63	24	0	0	0	38	1
5012	380	325	0	0	0	53	2	277	105	0	0	0	167	3
5013	1691	1446	0	0	0	235	10	828	314	0	0	0	498	8
5015	380	325	0	0	7	46	2	220	83	0	0	18	115	2
5063	1210	1035	0	0	0	168	7	539	204	0	0	0	324	5
5082	209	179	0	0	0	29	1	148	56	0	0	0	89	1
5083	356	304	0	0	0	49	2	260	99	0	0	0	156	3
5084	1483	1268	0	0	0	206	9	979	371	0	0	0	589	9
5085	760	650	0	0	0	106	5	500	190	0	0	0	301	5
5087	443	379	0	0	0	62	3	231	88	0	0	0	139	2
5169	713	610	2	0	0	97	4	29	11	4	0	0	14	0
5172	238	204	0	0	0	33	1	105	40	0	0	0	63	1
5261	620	530	0	0	0	86	4	373	141	0	0	0	224	4
5411	10740	9185	0	0	0	1,491	64	4574	1734	0	0	0	2,751	44
5511	1399	1196	0	0	26	169	7	774	294	5	0	62	401	6
5521	880	753	8	0	16	100	4	909	345	0	0	73	476	8
5531	1656	1416	0	0	31	200	9	1534	582	0	0	124	803	13
5541	5371	4593	3	325	58	375	16	3440	1304	55	6	270	1,749	28
5551	259	221	0	0	0	36	2	133	50	0	0	0	80	1
5941	1331	1138	0	0	0	185	8	629	239	0	0	0	378	6
5983	868	742	0	0	0	121	5	211	80	0	0	0	127	2
5999	2743	2346	0	0	0	381	16	934	354	0	0	0	562	9
7261	1210	1035	0	0	0	168	7	458	174	1	0	0	274	4
7389	4529	3873	0	0	0	629	27	1167	443	0	0	0	702	11

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

NEW YORK

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
7514	307	263	0	0	6	37	2
7515	103	88	0	0	2	12	1
7532	2393	2046	0	0	45	289	12
7533	393	336	0	0	7	47	2
7537	399	341	0	0	8	48	2
7538	4404	3766	11	0	81	523	22
7539	497	425	1	0	9	59	3
7542	623	533	0	0	0	86	4
7549	520	445	0	0	10	63	3
7692	199	170	0	0	0	28	1
7694	109	93	0	0	0	15	1
7699	2003	1713	0	0	0	278	12
7999	1460	1249	0	0	0	203	9
8062	13	11	0	0	0	2	0
8211	7387	6317	0	0	0	1,026	44
8734	213	182	0	0	0	30	1
9111	1918	1640	0	0	36	232	10
9224	1493	1277	0	0	0	207	9
Total	**86,289**	**73,794**	**29**	**325**	**429**	**11,229**	**483**

POTW Coverage 85.52%
Wells in SWPA 4.12%

NORTH CAROLINA

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells ~
7514	121	46	0	0	10	63	1
7515	16	6	0	0	1	8	0
7532	824	312	1	0	66	430	7
7533	122	46	2	0	10	62	1
7537	139	53	0	0	11	73	1
7538	1792	680	4	0	144	934	15
7539	295	112	0	0	24	154	2
7542	320	121	0	0	0	192	3
7549	209	79	0	0	17	109	2
7692	200	76	0	0	0	120	2
7694	89	34	0	0	0	54	1
7699	985	374	0	0	0	592	10
7999	658	250	0	0	0	396	6
8062	12	5	0	0	0	7	0
8211	3131	1187	0	0	0	1,883	30
8734	93	35	0	0	0	56	1
9111	708	268	0	0	57	370	6
9224	670	254	0	0	0	403	6
Total	**40,928**	**15,520**	**81**	**6**	**1,111**	**23,455**	**378**

POTW Coverage 37.92%
Wells in SWPA 3.12%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding.

~ Class V Wells are prohibited in North Carolina, but only 50% of potential wells are removed from the analysis because it is unknown how effective the ban is in practice.

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	NORTH DAKOTA							OHIO						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	233	171	0	0	0	62	0	4130	2655	0	0	0	1,438	37
1541	37	27	0	0	0	10	0	406	261	0	0	0	141	4
1611	43	32	0	0	0	11	0	375	241	0	0	0	131	3
1711	221	162	0	0	0	59	0	3138	2017	0	0	0	1,093	28
1794	34	25	0	0	0	9	0	798	513	0	0	0	278	7
2752	44	32	0	0	0	12	0	1227	789	0	0	0	427	11
2759	24	18	0	0	0	6	0	450	289	1	0	0	156	4
3089	11	8	0	0	0	3	0	613	394	0	0	0	213	6
3599	28	21	0	0	0	7	0	1599	1028	0	0	0	557	14
4142	24	18	0	0	1	6	0	29	19	0	0	1	9	0
4212	275	201	0	0	10	64	0	2249	1446	0	0	104	681	18
4213	370	271	0	0	13	86	0	1899	1221	0	0	88	575	15
4581	13	10	1	0	0	2	0	103	66	2	0	5	30	1
4911	see Appendix IV							see Appendix IV						
4953	14	10	0	0	0	4	0	141	91	0	0	0	49	1
5012	40	29	0	0	0	11	0	303	195	0	0	0	105	3
5013	127	93	0	0	0	34	0	1251	804	0	0	0	436	11
5015	22	16	0	0	1	5	0	305	196	0	0	14	92	2
5063	37	27	0	0	0	10	0	822	528	0	0	0	286	7
5082	22	16	0	0	0	6	0	197	127	0	0	0	69	2
5083	230	168	0	0	0	61	0	393	253	0	0	0	137	4
5084	82	60	0	0	0	22	0	1615	1038	0	0	0	562	15
5085	24	18	0	0	0	6	0	930	598	0	0	0	324	8
5087	28	21	0	0	0	7	0	324	208	0	0	0	113	3
5169	36	26	0	0	0	10	0	532	342	4	0	0	181	5
5172	25	18	0	0	0	7	0	136	87	0	0	0	47	1
5261	34	25	0	0	0	9	0	560	360	0	0	0	195	5
5411	359	263	0	0	0	96	0	5409	3477	0	0	0	1,883	49
5511	122	89	0	0	4	28	0	1116	717	2	0	52	336	9
5521	44	32	0	0	2	10	0	818	526	0	0	38	248	6
5531	94	69	0	0	3	22	0	1649	1060	0	0	77	499	13
5541	422	309	2	0	14	96	0	4713	3030	177	35	191	1,248	32
5551	16	12	0	0	0	4	0	144	93	0	0	0	50	1
5941	63	46	0	0	0	17	0	916	589	0	0	0	319	8
5983	20	15	0	0	0	5	0	129	83	0	0	0	45	1
5999	86	63	0	0	0	23	0	1542	991	0	0	0	537	14
7261	68	50	0	0	0	18	0	910	585	0	0	0	317	8
7389	87	64	0	0	0	23	0	1680	1080	0	0	0	585	15

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

NORTH DAKOTA

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
7514	15	11	0	0	1	3	0
7515	1	1	0	0	0	0	0
7532	126	92	0	0	4	29	0
7533	13	10	0	0	0	3	0
7537	0	0	0	0	0	0	0
7538	161	118	0	0	6	37	0
7539	21	15	0	0	1	5	0
7542	36	26	0	0	0	10	0
7549	13	10	0	0	0	3	0
7692	32	23	0	0	0	9	0
7694	12	9	0	0	0	3	0
7699	115	84	0	0	0	31	0
7999	106	78	0	0	0	28	0
8062	1	1	0	0	0	0	0
8211	548	401	0	0	0	146	0
8734	20	15	0	0	0	5	0
9111	948	695	0	0	33	220	1
9224	122	89	0	0	0	33	0
Total	5,749	4,212	3	0	93	1,438	3

POTW Coverage 73.26%

Wells in SWPA 0.24%

OHIO

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
7514	173	111	0	0	8	52	1
7515	78	50	0	0	4	24	1
7532	1442	927	0	0	67	437	11
7533	363	233	0	0	17	110	3
7537	222	143	0	0	10	67	2
7538	2366	1521	0	0	110	717	19
7539	363	233	0	0	17	110	3
7542	607	390	0	0	0	211	5
7549	509	327	1	0	24	153	4
7692	202	130	0	0	0	70	2
7694	122	78	0	0	0	42	1
7699	1439	925	0	0	0	501	13
7999	817	525	0	0	0	284	7
8062	3	2	0	0	0	1	0
8211	5381	3459	0	0	0	1,873	49
8734	201	129	0	0	0	70	2
9111	1827	1174	0	0	85	553	14
9224	766	492	0	0	0	267	7
Total	60,432	38,846	187	35	911	19,936	517

POTW Coverage 64.28%

Wells in SWPA 2.53%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Appendix II

Community Non-transient Non-community Ground Water System
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

OKLAHOMA

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
0742				see Appendix IV			
1521	590	432	0	0	0	157	1
1541	77	56	0	0	0	21	0
1611	151	111	0	0	0	40	0
1711	957	701	0	0	0	255	1
1794	64	47	0	0	0	17	0
2752	302	221	0	0	0	80	0
2759	107	78	0	0	0	29	0
3089	79	58	0	0	0	21	0
3599	339	248	0	0	0	90	0
4142	16	12	0	0	1	4	0
4212	594	435	0	0	21	138	1
4213	600	439	0	0	21	139	1
4581	85	62	4	0	2	16	0
4911				see Appendix IV			
4953	61	45	0	0	0	16	0
5012	92	67	0	0	0	25	0
5013	321	235	0	0	0	86	0
5015	141	103	0	0	5	33	0
5063	211	154	0	0	0	56	0
5082	58	42	0	0	0	15	0
5083	200	146	0	0	0	53	0
5084	691	506	0	0	0	184	1
5085	229	168	0	0	0	61	0
5087	103	75	0	0	0	27	0
5169	194	142	2	0	0	50	0
5172	135	99	0	0	0	36	0
5261	150	110	0	0	0	40	0
5411	2111	1545	0	0	0	562	3
5511	401	294	1	0	14	92	0
5521	224	164	0	0	8	52	0
5531	730	534	0	0	25	169	1
5541	1597	1169	7	1	55	363	2
5551	58	42	0	0	0	15	0
5941	203	149	0	0	0	54	0
5983	13	10	0	0	0	3	0
5999	467	342	0	0	0	124	1
7261	264	193	0	0	0	70	0
7389	559	409	0	0	0	149	1

OREGON

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
0742				see Appendix IV			
1521	1868	1086	0	0	0	777	4
1541	109	63	0	0	0	45	0
1611	244	142	0	0	0	102	1
1711	802	466	0	0	0	334	2
1794	261	152	0	0	0	109	1
2752	420	244	0	0	0	175	1
2759	105	61	0	0	0	44	0
3089	103	60	0	0	0	43	0
3599	327	190	0	0	0	136	1
4142	9	5	0	0	0	3	0
4212	898	522	0	0	49	325	2
4213	671	390	0	0	36	243	1
4581	42	24	2	0	2	13	0
4911				see Appendix IV			
4953	49	28	0	0	0	20	0
5012	104	60	0	0	0	43	0
5013	358	208	0	0	0	149	1
5015	127	74	0	0	7	46	0
5063	247	144	0	0	0	103	1
5082	106	62	0	0	0	44	0
5083	137	80	0	0	0	57	0
5084	353	205	0	0	0	147	1
5085	271	158	0	0	0	113	1
5087	104	60	0	0	0	43	0
5169	101	59	1	0	0	41	0
5172	49	28	0	0	0	20	0
5261	151	88	0	0	0	63	0
5411	1847	1074	0	0	0	768	4
5511	288	168	0	0	16	104	1
5521	216	126	1	0	12	77	0
5531	552	321	0	0	30	200	1
5541	1102	641	51	18	51	339	2
5551	71	41	0	0	0	30	0
5941	378	220	0	0	0	157	1
5983	30	17	0	0	0	12	0
5999	534	311	0	0	0	222	1
7261	138	80	0	0	0	57	0
7389	601	350	0	0	0	250	1

Appendix II

Community Non-transient Non-community Ground Water System
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

OKLAHOMA

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
7514	50	37	0	0	2	12	0
7515	2	1	0	0	0	0	0
7532	409	299	0	0	14	95	1
7533	78	57	0	0	3	18	0
7537	79	58	0	0	3	18	0
7538	709	519	0	0	25	164	1
7539	163	119	0	0	6	38	0
7542	136	100	0	0	0	36	0
7549	136	100	0	0	5	32	0
7692	109	80	0	0	0	29	0
7694	36	26	0	0	0	10	0
7699	401	294	0	0	0	107	1
7999	236	173	0	0	0	63	0
8062	11	8	0	0	0	3	0
8211	2744	2009	0	0	0	731	4
8734	64	47	0	0	0	17	0
9111	546	400	0	0	19	127	1
9224	525	384	0	0	0	140	1
Total	**19,608**	**14,355**	**14**	**1**	**227**	**4,984**	**27**

POTW Coverage 73.21%

Wells in SWPA 0.54%

OREGON

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
7514	55	32	0	0	3	20	0
7515	5	3	0	0	0	2	0
7532	399	232	0	0	22	144	1
7533	73	42	0	0	4	26	0
7537	96	56	0	0	5	35	0
7538	809	471	1	0	44	292	2
7539	127	74	0	0	7	46	0
7542	157	91	0	0	0	65	0
7549	157	91	0	0	9	57	0
7692	54	31	0	0	0	22	0
7694	44	26	0	0	0	18	0
7699	514	299	0	0	0	214	1
7999	294	171	0	0	0	122	1
8062	7	4	0	0	0	3	0
8211	1491	867	0	0	0	620	3
8734	67	39	0	0	0	28	0
9111	250	145	0	0	14	90	1
9224	340	198	0	0	0	141	1
Total	**18,712**	**10,883**	**56**	**18**	**310**	**7,403**	**42**

POTW Coverage 58.16%

Wells in SWPA 0.56%

Percent of wells previously thought to be Class V, which actually are Class IV: 13%

Totals may not be exact due to rounding.

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biennual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

EPA Staff Draft--Do Not Cite or Quote--Deliberative Material

Appendix II

Community Non-transient Non-community Ground Water System
Estimated Number of Industrial Disposal Wells by State
(Assumes One Well per Establishment)

	PENNSYLVANIA							RHODE ISLAND						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	5713	3366	0	0	0	2,249	49	545	348	0	0	0	182	15
1541	295	174	0	0	0	116	3	27	17	0	0	0	9	1
1611	418	246	0	0	0	165	4	29	19	0	0	0	10	1
1711	3459	2038	0	0	0	1,362	30	328	210	0	0	0	110	9
1794	916	540	0	0	0	361	8	99	63	0	0	0	33	3
2752	1224	721	5	0	0	477	10	126	81	0	0	0	42	3
2759	377	222	3	0	0	146	3	55	35	1	0	0	17	1
3089	385	227	0	0	0	152	3	64	41	0	0	0	21	2
3599	1197	705	0	0	0	471	10	117	75	0	0	0	39	3
4142	62	37	0	0	3	21	0	37	24	0	0	2	11	1
4212	2144	1263	0	0	115	734	16	145	93	0	0	7	42	3
4213	1677	988	0	0	90	574	13	98	63	0	0	5	28	2
4581	77	45	8	0	3	20	0	8	5	1	0	0	2	0
4911	see Appendix IV							see Appendix IV						
4953	188	111	0	0	0	74	2	27	17	0	0	0	9	1
5012	395	233	0	0	0	156	3	27	17	0	0	0	9	1
5013	1313	773	0	0	0	517	11	97	62	0	0	0	32	3
5015	347	204	0	0	19	119	3	30	19	0	0	1	9	1
5063	809	477	0	0	0	319	7	57	36	0	0	0	19	2
5082	266	157	0	0	0	105	2	9	6	0	0	0	3	0
5083	228	134	0	0	0	90	2	11	7	0	0	0	4	0
5084	1350	795	0	0	0	532	12	104	66	0	0	0	35	3
5085	846	498	0	0	0	333	7	59	38	0	0	0	20	2
5087	388	229	0	0	0	153	3	36	23	0	0	0	12	1
5169	431	254	3	0	0	167	4	54	35	0	0	0	18	1
5172	113	67	0	0	0	44	1	11	7	0	0	0	4	0
5261	577	340	0	0	0	227	5	36	23	0	0	0	12	1
5411	5632	3318	0	0	0	2,217	48	442	282	0	0	0	148	12
5511	1566	923	3	0	83	534	12	84	54	0	0	4	24	2
5521	868	511	0	0	46	297	6	84	54	0	0	4	24	2
5531	1493	880	0	0	80	511	11	108	69	0	0	5	31	3
5541	4744	2795	87	56	235	1,506	33	430	275	3	23	17	104	8
5551	104	61	0	0	0	41	1	27	17	0	0	0	9	1
5941	1010	595	0	0	0	398	9	82	52	0	0	0	27	2
5983	587	346	0	0	0	231	5	129	82	0	0	0	43	3
5999	1677	988	0	0	0	660	14	136	87	0	0	0	45	4
7261	1007	593	0	0	0	396	9	88	56	0	0	0	29	2
7389	2014	1186	0	0	0	793	17	225	144	0	0	0	75	6

Appendix II

Community Non-transient Non-community Ground Water System
Estimated Number of Industrial Disposal Wells by State
(Assumes One Well per Establishment)

	PENNSYLVANIA							RHODE ISLAND						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells ~	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
7514	189	111	0	0	10	65	1	25	16	0	0	1	7	1
7515	37	22	0	0	2	13	0	2	1	0	0	0	1	0
7532	1783	1050	1	0	95	610	13	195	125	0	0	9	57	5
7533	232	137	2	0	12	78	2	24	15	0	0	1	7	1
7537	258	152	0	0	14	88	2	19	12	0	0	1	6	0
7538	3421	2015	3	0	182	1,169	26	262	167	0	0	12	76	6
7539	362	213	0	0	19	124	3	41	26	0	0	2	12	1
7542	493	290	0	0	0	194	4	31	20	0	0	0	10	1
7549	326	192	1	0	17	111	2	43	27	0	0	2	12	1
7692	205	121	0	0	0	81	2	25	16	0	0	0	8	1
7694	107	63	0	0	0	42	1	6	4	0	0	0	2	0
7699	1233	726	0	0	0	485	11	135	86	0	0	0	45	4
7999	921	543	0	0	0	363	8	87	56	0	0	0	29	2
8062	1	1	0	0	0	0	0	0	0	0	0	0	0	0
8211	5968	3516	0	0	0	2,350	51	365	233	0	0	0	122	10
8734	233	137	0	0	0	92	2	13	8	0	0	0	4	0
9111	2446	1441	0	0	131	838	18	69	44	0	0	3	20	2
9224	1343	791	0	0	0	529	12	65	42	0	0	0	22	2
Total	**65,455**	**38,560**	**116**	**56**	**1,156**	**24,499**	**534**	**5,478**	**3,500**	**5**	**23**	**76**	**1,733**	**140**

POTW Coverage	Wells in SWPA	POTW Coverage	Wells in SWPA
58.91%	4.18%	63.90%	7.50%

Percent of wells previously thought to be Class V, which actually are Class IV: 13%

Totals may not be exact due to rounding.

~ Class V Wells are strictly regulated in Pennsylvania, therefore, 50% of potential wells are removed from the analysis.

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	SOUTH CAROLINA							SOUTH DAKOTA						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	1696	1018	0	0	0	667	3	321	214	0	0	0	107	0
1541	159	95	0	0	0	63	0	12	8	0	0	0	4	0
1611	121	73	0	0	0	48	0	106	71	0	0	0	35	0
1711	1145	687	0	0	0	450	2	244	162	0	0	0	81	0
1794	218	131	0	0	0	86	0	35	23	0	0	0	12	0
2752	304	182	1	0	0	119	1	77	51	0	0	0	26	0
2759	88	53	0	0	0	35	0	13	9	0	0	0	4	0
3089	90	54	0	0	0	35	0	16	11	0	0	0	5	0
3599	264	158	0	0	0	104	0	40	27	0	0	0	13	0
4142	21	13	0	0	1	7	0	28	19	0	0	1	8	0
4212	454	272	0	0	24	155	1	348	232	0	0	15	101	0
4213	560	336	0	0	29	192	1	375	250	0	0	16	109	0
4581	44	26	4	0	2	12	0	16	11	0	0	1	5	0
4911	see Appendix IV							see Appendix IV						
4953	32	19	0	0	0	13	0	12	8	0	0	0	4	0
5012	148	89	0	0	0	58	0	26	17	0	0	0	9	0
5013	327	196	0	0	0	129	1	98	65	0	0	0	33	0
5015	102	61	0	0	5	35	0	29	19	0	0	1	8	0
5063	221	133	0	0	0	87	0	31	21	0	0	0	10	0
5082	66	40	0	0	0	26	0	23	15	0	0	0	8	0
5083	117	70	0	0	0	46	0	167	111	0	0	0	56	0
5084	413	248	0	0	0	162	1	38	25	0	0	0	13	0
5085	230	138	0	0	0	90	0	22	15	0	0	0	7	0
5087	111	67	0	0	0	44	0	19	13	0	0	0	6	0
5169	163	98	1	0	0	63	0	17	11	0	0	0	6	0
5172	47	28	0	0	0	18	0	20	13	0	0	0	7	0
5261	177	106	0	0	0	70	0	29	19	0	0	0	10	0
5411	2295	1377	0	0	0	903	4	533	355	0	0	0	178	1
5511	364	218	3	0	19	122	1	123	82	0	0	5	36	0
5521	410	246	0	0	21	140	1	65	43	0	0	3	19	0
5531	833	500	0	0	43	285	1	136	91	0	0	6	39	0
5541	1772	1063	155	7	71	468	2	517	344	0	0	22	150	1
5551	102	61	0	0	0	40	0	12	8	0	0	0	4	0
5941	282	169	0	0	0	111	0	81	54	0	0	0	27	0
5983	53	32	0	0	0	21	0	12	8	0	0	0	4	0
5999	529	317	0	0	0	208	1	85	57	0	0	0	28	0
7261	248	149	0	0	0	98	0	74	49	0	0	0	25	0
7389	795	477	0	0	0	313	1	93	62	0	0	0	31	0

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

SOUTH CAROLINA

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells ~
7514	88	53	0	0	5	30	0
7515	8	5	0	0	0	3	0
7532	468	281	0	0	24	160	1
7533	60	36	0	0	3	21	0
7537	80	48	0	0	4	27	0
7538	890	534	4	0	46	301	1
7539	145	87	1	0	7	49	0
7542	130	78	0	0	0	51	0
7549	129	77	0	0	7	44	0
7692	88	53	0	0	0	35	0
7694	53	32	0	0	0	21	0
7699	476	286	0	0	0	187	1
7999	354	212	0	0	0	139	1
8062	12	7	0	0	0	5	0
8211	1876	1126	0	0	0	738	3
8734	48	29	0	0	0	19	0
9111	199	119	0	0	10	68	0
9224	304	182	0	0	0	120	1
Total	20,409	12,247	169	7	322	7,536	32

POTW Coverage 60.01%

Wells in SWPA 1.66%

SOUTH DAKOTA

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
7514	16	11	0	0	1	5	0
7515	1	1	0	0	0	0	0
7532	153	102	0	0	7	44	0
7533	11	7	0	0	0	3	0
7537	20	13	0	0	1	6	0
7538	220	146	0	0	10	64	0
7539	36	24	0	0	2	10	0
7542	47	31	0	0	0	16	0
7549	14	9	0	0	1	4	0
7692	43	29	0	0	0	14	0
7694	11	7	0	0	0	4	0
7699	124	83	0	0	0	41	0
7999	130	87	0	0	0	43	0
8062	0	0	0	0	0	0	0
8211	859	572	0	0	0	286	1
8734	13	9	0	0	0	4	0
9111	839	558	0	0	36	243	1
9224	148	99	0	0	0	49	0
Total	6,578	4,378	0	0	128	2,064	8

POTW Coverage 66.56%

Wells in SWPA 0.38%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

~ Class V Wells are prohibited in South Carolina, therefore 75% of potential wells are removed from the analysis because it is unknown how effective the ban is in practice.

Totals may not be exact due to rounding.

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	TENNESSEE							TEXAS						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	1489	639	0	0	0	847	3	3773	2684	0	0	0	1,078	11
1541	203	87	0	0	0	115	0	562	400	0	0	0	161	2
1611	191	82	0	0	0	109	0	576	410	0	0	0	165	2
1711	1318	566	0	0	0	749	3	4629	3293	0	0	0	1,322	13
1794	247	106	0	0	0	140	1	464	330	0	0	0	133	1
2752	547	235	2	0	0	309	1	1935	1377	0	0	0	553	6
2759	152	65	0	0	0	86	0	542	386	0	0	0	155	2
3089	150	64	0	0	0	85	0	451	321	0	0	0	129	1
3599	361	155	0	0	0	205	1	1567	1115	0	0	0	448	5
4142	18	8	0	0	1	9	0	30	21	0	0	1	7	0
4212	848	364	0	0	63	419	2	2596	1847	0	0	97	645	7
4213	1145	492	0	0	85	566	2	2567	1826	0	0	96	638	7
4581	57	24	4	0	4	25	0	331	235	2	0	12	81	1
4911	see Appendix IV							see Appendix IV						
4953	65	28	0	0	0	37	0	234	166	0	0	0	67	1
5012	189	81	0	0	0	107	0	558	397	0	0	0	159	2
5013	643	276	0	0	0	366	1	1699	1209	0	0	0	485	5
5015	170	73	0	0	13	84	0	567	403	0	0	21	141	1
5063	434	186	0	0	0	247	1	1332	948	0	0	0	381	4
5082	117	50	0	0	0	67	0	378	269	0	0	0	108	1
5083	240	103	0	0	0	136	1	754	536	0	0	0	215	2
5084	571	245	0	0	0	325	1	3440	2447	0	0	0	983	10
5085	368	158	0	0	0	209	1	1472	1047	0	0	0	421	4
5087	141	61	0	0	0	80	0	601	428	0	0	0	172	2
5169	207	89	7	0	0	111	0	1059	753	9	0	0	294	3
5172	77	33	0	0	0	44	0	523	372	0	0	0	149	2
5261	207	89	0	0	0	118	0	738	525	0	0	0	211	2
5411	3495	1500	0	0	0	1,987	7	10286	7317	0	0	0	2,939	30
5511	487	209	0	0	36	241	1	1335	950	2	0	50	330	3
5521	616	264	0	0	46	305	1	1610	1145	0	0	60	400	4
5531	1040	446	0	0	77	514	2	3563	2535	0	0	134	886	9
5541	2456	1054	52	2	175	1,168	4	7547	5369	54	0	276	1,829	19
5551	97	42	0	0	0	55	0	265	189	0	0	0	76	1
5941	370	159	0	0	0	210	1	1279	910	0	0	0	365	4
5983	9	4	0	0	0	5	0	32	23	0	0	0	9	0
5999	737	316	0	0	0	419	2	2566	1825	0	0	0	733	7
7261	332	143	0	0	0	189	1	896	637	0	0	0	256	3
7389	800	343	0	0	0	455	2	3671	2612	0	0	0	1,049	11

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

TENNESSEE

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
7514	101	43	0	0	7	50	0
7515	16	7	0	0	1	8	0
7532	634	272	0	0	47	314	1
7533	125	54	0	0	9	62	0
7537	124	53	0	0	9	61	0
7538	1048	450	4	0	77	515	2
7539	206	88	0	0	15	102	0
7542	229	98	0	0	0	130	0
7549	179	77	0	0	13	89	0
7692	74	32	0	0	0	42	0
7694	51	22	0	0	0	29	0
7699	592	254	0	0	0	337	1
7999	377	162	0	0	0	214	1
8062	48	21	0	0	0	27	0
8211	1915	822	0	0	0	1,089	4
8734	65	28	0	0	0	37	0
9111	462	198	0	0	34	229	1
9224	452	194	0	0	0	257	1
Total	**27,292**	**11,716**	**69**	**2**	**714**	**14,736**	**55**

POTW Coverage 42.93%

Wells in SWPA 0.37%

TEXAS

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
7514	390	277	0	0	15	97	1
7515	51	36	0	0	2	13	0
7532	1936	1377	1	0	73	480	5
7533	363	258	0	0	14	90	1
7537	550	391	0	0	21	137	1
7538	4504	3204	1	0	169	1,119	11
7539	974	693	0	0	37	242	2
7542	677	482	0	0	0	193	2
7549	925	658	1	0	35	229	2
7692	505	359	0	0	0	144	1
7694	205	146	0	0	0	59	1
7699	2684	1909	0	0	0	767	8
7999	1279	910	0	0	0	365	4
8062	123	88	0	0	0	35	0
8211	12879	9162	0	0	0	3,679	38
8734	416	296	0	0	0	119	1
9111	1297	923	0	0	49	322	3
9224	1207	859	0	0	0	345	4
Total	**97,393**	**69,285**	**70**	**0**	**1,160**	**26,606**	**271**

POTW Coverage 71.14%

Wells in SWPA 1.01%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biennual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

Estimated Number of I

SIC Code	UTAH Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells	VERMONT Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
0742				see Appendix IV							see Appendix IV			
1521	850	537	0	0	0	312	1	759	454	0	0	0	297	7
1541	57	36	0	0	0	21	0	11	7	0	0	0	4	0
1611	75	47	0	0	0	28	0	23	14	0	0	0	9	0
1711	575	363	0	0	0	211	1	261	156	0	0	0	102	3
1794	86	54	0	0	0	32	0	194	116	0	0	0	76	2
2752	169	107	0	0	0	62	0	74	44	1	0	0	28	1
2759	55	35	0	0	0	20	0	29	17	0	0	0	11	0
3089	60	38	0	0	0	22	0	21	13	0	0	0	8	0
3599	143	90	0	0	0	53	0	44	26	0	0	0	17	0
4142	18	11	0	0	1	6	0	33	20	0	0	2	11	0
4212	235	148	0	0	11	75	0	194	116	0	0	10	66	2
4213	352	222	0	0	17	112	0	136	81	0	0	7	46	1
4581	20	13	1	0	1	6	0	7	4	0	0	0	2	0
4911				see Appendix IV							see Appendix IV			
4953	20	13	0	0	0	7	0	22	13	0	0	0	9	0
5012	50	32	0	0	0	18	0	20	12	0	0	0	8	0
5013	193	122	0	0	0	71	0	101	60	0	0	0	40	1
5015	47	30	0	0	2	15	0	14	8	0	0	1	5	0
5063	155	98	0	0	0	57	0	44	26	0	0	0	17	0
5082	57	36	0	0	0	21	0	13	8	0	0	0	5	0
5083	61	39	0	0	0	22	0	43	26	0	0	0	17	0
5084	217	137	0	0	0	80	0	44	26	0	0	0	17	0
5085	101	64	0	0	0	37	0	24	14	0	0	0	9	0
5087	76	48	0	0	0	28	0	13	8	0	0	0	5	0
5169	93	59	0	0	0	34	0	16	10	0	0	0	6	0
5172	26	16	0	0	0	10	0	5	3	0	0	0	2	0
5261	62	39	0	0	0	23	0	38	23	0	0	0	15	0
5411	623	393	0	0	0	229	1	651	390	0	0	0	255	6
5511	176	111	0	0	8	56	0	106	63	0	0	6	36	1
5521	125	79	0	0	6	40	0	65	39	0	0	3	22	1
5531	297	188	0	0	14	95	0	81	48	0	0	4	28	1
5541	820	518	0	0	39	262	1	327	196	0	0	17	111	3
5551	27	17	0	0	0	10	0	12	7	0	0	0	5	0
5941	227	143	0	0	0	83	0	138	83	0	0	0	54	1
5983	1	1	0	0	0	0	0	84	50	0	0	0	33	1
5999	276	174	0	0	0	101	0	108	65	0	0	0	42	1
7261	61	39	0	0	0	22	0	55	33	0	0	0	22	1
7389	303	191	0	0	0	111	0	107	64	0	0	0	42	1

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

Estimated Number of I

	UTAH							VERMONT						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
7514	44	28	0	0	2	14	0	11	7	0	0	1	4	0
7515	6	4	0	0	0	2	0	0	0	0	0	0	0	0
7532	209	132	0	0	10	67	0	96	57	0	0	5	33	1
7533	41	26	0	0	2	13	0	8	5	0	0	0	3	0
7537	48	30	0	0	2	15	0	6	4	0	0	0	2	0
7538	491	310	0	0	24	157	1	240	144	0	0	13	82	2
7539	68	43	0	0	3	22	0	12	7	0	0	1	4	0
7542	100	63	0	0	0	37	0	21	13	0	0	0	8	0
7549	95	60	0	0	5	30	0	11	7	0	0	1	4	0
7692	49	31	0	0	0	18	0	13	8	0	0	0	5	0
7694	14	9	0	0	0	5	0	5	3	0	0	0	2	0
7699	207	131	0	0	0	76	0	90	54	0	0	0	35	1
7999	183	116	0	0	0	67	0	104	62	0	0	0	41	1
8062	8	5	0	0	0	3	0	0	0	0	0	0	0	0
8211	624	394	0	0	0	229	1	387	232	0	0	0	152	4
8734	45	28	0	0	0	17	0	14	8	0	0	0	5	0
9111	294	186	0	0	14	94	0	358	214	0	0	19	122	3
9224	152	96	0	0	0	56	0	53	32	0	0	0	21	1
Total	**9,467**	**5,978**	**1**	**0**	**162**	**3,315**	**11**	**5,346**	**3,200**	**1**	**0**	**89**	**2,006**	**51**

POTW Coverage	Wells in SWPA	POTW Coverage	Wells in SWPA
63.15%	0.32%	59.85%	2.46%

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

* Where facilities served by POTWs and NPDES permitted facilities exceed the number of facilities for a given SIC code, the total number of wells is assumed to be zero.

Totals may not be exact due to rounding

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

ndustrial

	VIRGINIA							WASHINGTON						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
0742				see Appendix IV							see Appendix IV			
1521	3654	1454	0	0	0	2,134	33	4362	2639	0	0	0	1,683	40
1541	141	56	0	0	0	82	1	203	123	0	0	0	78	2
1611	358	142	0	0	0	209	3	259	157	0	0	0	100	2
1711	2168	863	0	0	0	1,266	20	1469	889	0	0	0	567	13
1794	318	127	0	0	0	186	3	469	284	0	0	0	181	4
2752	637	253	0	0	0	372	6	599	362	0	0	0	231	5
2759	168	67	0	0	0	98	2	140	85	0	0	0	54	1
3089	73	29	0	0	0	43	1	126	76	0	0	0	49	1
3599	319	127	0	0	0	186	3	445	269	0	0	0	172	4
4142	32	13	0	0	3	16	0	47	28	0	0	2	16	0
4212	1491	593	0	0	117	758	12	970	587	0	0	50	326	8
4213	902	359	0	0	71	458	7	930	563	0	0	48	312	7
4581	70	28	7	0	5	30	0	89	54	0	0	5	30	1
4911				see Appendix IV							see Appendix IV			
4953	42	17	0	0	0	25	0	66	40	0	0	0	25	1
5012	181	72	0	0	0	106	2	148	90	0	0	0	57	1
5013	702	279	0	0	0	410	6	502	304	0	0	0	194	5
5015	160	64	0	0	13	81	1	163	99	0	0	8	55	1
5063	380	151	0	0	0	222	3	418	253	0	0	0	161	4
5082	162	64	0	0	0	95	1	119	72	0	0	0	46	1
5083	189	75	0	0	0	110	2	177	107	0	0	0	68	2
5084	434	173	0	0	0	253	4	537	325	0	0	0	207	5
5085	293	117	0	0	0	171	3	325	197	0	0	0	125	3
5087	140	56	0	0	0	82	1	152	92	0	0	0	59	1
5169	177	70	1	0	0	102	2	156	94	3	0	0	57	1
5172	62	25	0	0	0	36	1	50	30	0	0	0	19	0
5261	276	110	0	0	0	161	2	236	143	0	0	0	91	2
5411	4076	1622	0	0	0	2,381	37	2706	1637	0	0	0	1,044	25
5511	598	238	3	0	46	301	5	405	245	0	0	21	136	3
5521	603	240	0	0	47	306	5	400	242	0	0	21	134	3
5531	1027	409	0	0	80	522	8	961	582	0	0	49	323	8
5541	2634	1048	40	33	197	1,277	20	1697	1027	0	26	84	547	13
5551	120	48	0	0	0	70	1	182	110	0	0	0	70	2
5941	561	223	0	0	0	328	5	647	391	0	0	0	250	6
5983	169	67	0	0	0	99	2	64	39	0	0	0	25	1
5999	914	364	0	0	0	534	8	894	541	0	0	0	345	8
7261	394	157	0	0	0	230	4	153	93	0	0	0	59	1
7389	1198	477	0	0	0	700	11	1082	655	0	0	0	417	10

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

ndustrial

	VIRGINIA							WASHINGTON						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells ~	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
7514	128	51	0	0	10	65	1	106	64	0	0	5	36	1
7515	17	7	0	0	1	9	0	11	7	0	0	1	4	0
7532	700	279	1	0	55	355	5	720	436	0	0	37	242	6
7533	136	54	1	0	11	68	1	103	62	0	0	5	35	1
7537	142	57	0	0	11	72	1	150	91	0	0	8	50	1
7538	1783	709	6	0	139	901	14	1351	817	0	0	69	453	11
7539	215	86	0	0	17	109	2	244	148	0	0	13	82	2
7542	214	85	0	0	0	125	2	237	143	0	0	0	91	2
7549	269	107	0	0	21	137	2	304	184	0	0	16	102	2
7692	124	49	0	0	0	72	1	126	76	0	0	0	49	1
7694	61	24	0	0	0	36	1	34	21	0	0	0	13	0
7699	802	319	0	0	0	468	7	823	498	0	0	0	317	8
7999	516	205	0	0	0	301	5	582	352	0	0	0	224	5
8062	13	5	0	0	0	8	0	5	3	0	0	0	2	0
8211	2409	959	0	0	0	1,407	22	2435	1473	0	0	0	939	22
8734	107	43	0	0	0	62	1	96	58	0	0	0	37	1
9111	248	99	0	0	19	126	2	321	194	0	0	16	108	3
9224	432	172	0	0	0	252	4	468	283	0	0	0	181	4
Total	**34,139**	**13,584**	**59**	**33**	**861**	**19,014**	**294**	**30,464**	**18,434**	**3**	**26**	**457**	**11,276**	**268**

POTW Coverage	Wells in SWPA	POTW Coverage	Wells in SWPA
39.79%	3.00%	60.51%	2.32%

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

* Where facilities served by POTWs and NPDES permitted facilities exceed the number of facilities for a given SIC code, the total number of wells is assumed to be zero.

Totals may not be exact due to rounding

~ Class V Wells are strictly regulated in Virginia, therefore, 50% of potential wells

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

Estimated Number of Industrial

SIC Code	WEST VIRGINIA Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells	WISCONSIN Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	1031	651	0	0	0	376	4	2402	1498	0	0	0	888	8
1541	69	44	0	0	0	25	0	156	97	0	0	0	58	1
1611	78	49	0	0	0	28	0	152	95	0	0	0	56	1
1711	399	252	0	0	0	146	2	1734	1081	0	0	0	641	6
1794	153	97	0	0	0	56	1	389	243	0	0	0	144	1
2752	93	59	0	0	0	34	0	675	421	6	0	0	244	2
2759	27	17	0	0	0	10	0	192	120	3	0	0	68	1
3089	13	8	0	0	0	5	0	270	168	0	0	0	100	1
3599	143	90	1	0	0	51	1	666	415	0	0	0	246	2
4142	8	5	0	0	0	3	0	22	14	0	0	1	7	0
4212	722	456	0	0	35	229	3	1691	1054	0	0	83	544	5
4213	275	174	0	0	13	87	1	1437	896	0	0	70	462	4
4581	9	6	8	0	0	0	0	55	34	0	0	3	18	0
4911	see Appendix IV							see Appendix IV						
4953	27	17	0	0	0	10	0	75	47	0	0	0	28	0
5012	39	25	0	0	0	14	0	179	112	0	0	0	66	1
5013	232	146	0	0	0	85	1	579	361	0	0	0	214	2
5015	47	30	0	0	2	15	0	164	102	0	0	8	53	0
5063	98	62	0	0	0	36	0	359	224	0	0	0	133	1
5082	135	85	0	0	0	49	1	102	64	0	0	0	38	0
5083	40	25	0	0	0	15	0	478	298	0	0	0	177	2
5084	132	83	0	0	0	48	1	655	408	0	0	0	242	2
5085	107	68	0	0	0	39	0	334	208	0	0	0	123	1
5087	49	31	0	0	0	18	0	132	82	0	0	0	49	0
5169	64	40	7	0	0	16	0	182	113	1	0	0	66	1
5172	32	20	0	0	0	12	0	61	38	0	0	0	23	0
5261	64	40	0	0	0	23	0	213	133	0	0	0	79	1
5411	1343	848	0	0	0	490	5	1801	1123	0	0	0	666	6
5511	243	153	3	0	11	75	1	635	396	0	0	31	204	2
5521	183	116	0	0	9	58	1	460	287	0	0	23	148	1
5531	335	211	0	0	16	106	1	459	286	0	0	22	148	1
5541	917	579	25	1	41	269	3	2576	1606	1	2	126	826	8
5551	22	14	0	0	0	8	0	145	90	0	0	0	54	0
5941	127	80	0	0	0	46	1	576	359	0	0	0	213	2
5983	15	9	0	0	0	5	0	108	67	0	0	0	40	0
5999	222	140	0	0	0	81	1	679	423	0	0	0	251	2
7261	231	146	0	0	0	84	1	405	253	0	0	0	150	1

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

Estimated Number of Industrial

WEST VIRGINIA

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
7389	165	104	0	0	0	60	1
7514	42	27	0	0	2	13	0
7515	4	3	0	0	0	1	0
7532	200	126	0	0	10	63	1
7533	39	25	0	0	2	12	0
7537	30	19	0	0	1	10	0
7538	351	222	11	0	15	102	1
7539	42	27	0	0	2	13	0
7542	85	54	0	0	0	31	0
7549	52	33	2	0	2	15	0
7692	32	20	0	0	0	12	0
7694	38	24	0	0	0	14	0
7699	223	141	0	0	0	81	1
7999	121	76	0	0	0	44	0
8062	10	6	0	0	0	4	0
8211	624	394	0	0	0	228	3
8734	51	32	0	0	0	19	0
9111	255	161	0	0	12	81	1
9224	300	189	0	0	0	109	1
Total	**10,388**	**6,557**	**57**	**1**	**174**	**3,564**	**39**

POTW Coverage 63.12%
Wells in SWPA 1.09%

WISCONSIN

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells ~
7389	843	526	0	0	0	312	3
7514	67	42	0	0	3	22	0
7515	28	17	0	0	1	9	0
7532	840	524	0	0	41	270	3
7533	106	66	1	0	5	33	0
7537	86	54	0	0	4	28	0
7538	1168	728	2	0	57	374	3
7539	140	87	0	0	7	45	0
7542	259	161	0	0	0	96	1
7549	173	108	0	0	8	56	1
7692	125	78	0	0	0	46	0
7694	55	34	0	0	0	20	0
7699	744	464	0	0	0	275	3
7999	441	275	0	0	0	163	2
8062	1	1	0	0	0	0	0
8211	3277	2043	0	0	0	1,211	11
8734	71	44	0	0	0	26	0
9111	2362	1473	0	0	116	760	7
9224	641	400	0	0	0	237	2
Total	**32,625**	**20,342**	**14**	**2**	**610**	**11,446**	**106**

POTW Coverage 62.35%
Wells in SWPA 1.82%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding

~ It is estimated that 50% of the wells in Wisconsin are prohibited because borehole type industrial wells, but not septic system industrial wells, are banned.

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

WYOMING

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
0742				see Appendix IV			
1521	377	261	0	0	0	115	0
1541	22	15	0	0	0	7	0
1611	66	46	0	0	0	20	0
1711	192	133	0	0	0	59	0
1794	42	29	0	0	0	13	0
2752	47	33	0	0	0	14	0
2759	0	0	0	0	0	0	0
3089	0	0	0	0	0	0	0
3599	40	28	0	0	0	12	0
4142	7	5	0	0	0	2	0
4212	160	111	0	0	6	43	0
4213	187	130	0	0	7	50	0
4581	15	10	2	0	0	2	0
4911				see Appendix IV			
4953	14	10	0	0	0	4	0
5012	12	8	0	0	0	4	0
5013	59	41	0	0	0	18	0
5015	16	11	0	0	1	4	0
5063	29	20	0	0	0	9	0
5082	33	23	0	0	0	10	0
5083	26	18	0	0	0	8	0
5084	141	98	0	0	0	43	0
5085	40	28	0	0	0	12	0
5087	17	12	0	0	0	5	0
5169	41	28	0	0	0	13	0
5172	17	12	0	0	0	5	0
5261	20	14	0	0	0	6	0
5411	199	138	0	0	0	61	0
5511	84	58	0	0	3	22	0
5521	23	16	0	0	1	6	0
5531	117	81	0	0	5	31	0
5541	416	288	5	1	16	106	0
5551	6	4	0	0	0	2	0
5941	124	86	0	0	0	38	0
5983	2	1	0	0	0	1	0
5999	104	72	0	0	0	32	0
7261	25	17	0	0	0	8	0

This space left intentionally blank.

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

WYOMING

SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells –
7389	81	56	0	0	0	25	0
7514	23	16	0	0	1	6	0
7515	0	0	0	0	0	0	0
7532	79	55	0	0	3	21	0
7533	9	6	0	0	0	2	0
7537	9	6	0	0	0	2	0
7538	193	134	0	0	8	51	0
7539	20	14	0	0	1	5	0
7542	26	18	0	0	0	8	0
7549	24	17	0	0	1	6	0
7692	48	33	0	0	0	15	0
7694	8	6	0	0	0	2	0
7699	126	87	0	0	0	39	0
7999	147	102	0	0	0	45	0
8062	2	1	0	0	0	1	0
8211	522	362	0	0	0	160	0
8734	29	20	0	0	0	9	0
9111	144	100	0	0	6	38	0
9224	52	36	0	0	0	16	0
Total	**4,262**	**2,955**	**7**	**1**	**60**	**1,237**	**1**

POTW Coverage
69.33%

Wells in SWPA
0.18%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding

This space left intentionally blank.

– Class V Wells are prohibited in Wyoming, therefore, 75% of potential wells are removed from the analysis because it is unknown how effective the ban is in practice.

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	GUAM							PUERTO RICO						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	160 [1]	102	0	0	0	56	2	295	159	0	0	0	129	4
1541	0	0	0	0	0	0	0	88	47	0	0	0	38	1
1611	9 [1]	6	0	0	0	3	0	104	56	0	0	0	45	1
1711	57 [1]	36	0	0	0	20	1	142	76	0	0	0	62	2
1794	0	0	0	0	0	0	0	23	12	0	0	0	10	0
2752	21 [1]	13	0	0	0	7	0	70	38	0	0	0	30	1
2759	0	0	0	0	0	0	0	54	29	0	0	0	24	1
3089	0	0	0	0	0	0	0	54	29	0	0	0	24	1
3599	0	0	0	0	0	0	0	12	6	0	0	0	5	0
4142	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4212	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4213	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4581	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4911	see Appendix IV							see Appendix IV						
4953	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5012	2 [1]	1	0	0	0	1	0	180 [1]	97	0	0	0	78	2
5013	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5015	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5063	16 [1]	10	0	0	0	6	0	89	48	0	0	0	39	1
5082	9 [1]	6	0	0	0	3	0	19	10	0	0	0	8	0
5083	0	0	0	0	0	0	0	10	5	0	0	0	4	0
5084	0	0	0	0	0	0	0	157	84	0	0	0	68	2
5085	0	0	0	0	0	0	0	29	16	0	0	0	13	0
5087	0	0	0	0	0	0	0	34	18	0	0	0	15	0
5169	1 [1]	1	0	0	0	0	0	99 [1]	53	0	0	0	43	1
5172	2 [1]	1	0	0	0	1	0	111 [1]	60	0	0	0	48	1
5261	1	1	0	0	0	0	0	131 [1]	70	0	0	0	57	2
5411	116	74	0	0	0	40	1	1222	657	1	0	0	531	16
5511	6	4	0	0	0	2	0	238	128	0	0	14	90	3
5521	0	0	0	0	0	0	0	127	68	0	0	8	48	1
5531	19	12	0	0	1	6	0	719	387	0	0	43	272	8
5541	19	12	0	0	1	6	0	1060	570	1	0	64	401	12
5551	6	4	0	0	0	2	0	16	9	0	0	0	7	0
5941	13	8	0	0	0	5	0	102	55	0	0	0	44	1
5983	2 [1]	1	0	0	0	1	0	66	35	0	0	0	29	1

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	GUAM							PUERTO RICO						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells ~
5999	17	11	0	0	0	6	0	325	175	0	0	0	142	4
7261	2	1	0	0	0	1	0	146	79	0	0	0	64	2
7389	22 [1]	14	0	0	0	8	0	152	82	0	0	0	66	2
7514	11	7	0	0	1	3	0	44	24	0	0	3	17	1
7515	10	6	0	0	0	3	0	4	2	0	0	0	2	0
7532	35 [1]	22	0	0	2	11	0	127	68	0	0	8	48	1
7533	0	0	0	0	0	0	0	69	37	0	0	4	26	1
7537	0	0	0	0	0	0	0	49	26	0	0	3	19	1
7538	0	0	0	0	0	0	0	323	174	0	0	19	122	4
7539	16	10	0	0	1	5	0	155	83	0	0	9	59	2
7542	1 [1]	1	0	0	0	0	0	20	11	0	0	0	9	0
7549	0	0	0	0	0	0	0	19	10	0	0	1	7	0
7692	8 [1]	5	0	0	0	3	0	32	17	0	0	0	14	0
7694	0	0	0	0	0	0	0	10	5	0	0	0	4	0
7699	0	0	0	0	0	0	0	136	73	0	0	0	59	2
7999	39	25	0	0	0	14	1	67	36	0	0	0	29	1
8062	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8211	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8734	0	0	0	0	0	0	0	14	8	0	0	0	6	0
9111	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9224	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**620**	**396**	**0**	**0**	**5**	**211**	**8**	**6,943**	**3,734**	**2**	**0**	**176**	**2,857**	**87**

POTW Coverage	Wells in SWPA	POTW Coverage	Wells in SWPA
63.87%	3.55%	53.78%	5.75%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding

[1] Data on the the number of facilities within this sic code may include similar facilities under the same major sic category heading.

~ Class V Wells are prohibited in Puerto Rico, but only 50% of potential wells are removed from the analysis because it is unknown how effective the ban is in practice.

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	NORTHERN MARIANA ISLANDS							U.S. VIRGIN ISLANDS						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
0742	see Appendix IV							see Appendix IV						
1521	68 [1]	3	0	0	0	57	9	77 [1]	54	0	0	0	23	0
1541	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1611	9 [1]	0	0	0	0	8	1	12 [1]	8	0	0	0	4	0
1711	26 [1]	1	0	0	0	22	3	47 [1]	33	0	0	0	14	0
1794	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2752	9 [1]	0	0	0	0	8	1	17 [1]	12	0	0	0	5	0
2759	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3089	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3599	2 [1]	0	0	0	0	2	0	1 [1]	1	0	0	0	0	0
4142	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4212	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4213	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4581	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4911	see Appendix IV							see Appendix IV						
4953	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5012	29 [1]	1	0	0	0	24	4	1 [1]	1	0	0	0	0	0
5013	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5015	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5063	0	0	0	0	0	0	0	7 [1]	5	0	0	0	2	0
5082	0	0	0	0	0	0	0	6 [1]	4	0	0	0	2	0
5083	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5084	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5085	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5087	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5169	31 [1]	1	0	0	0	26	4	2 [1]	1	0	0	0	1	0
5172	0	0	0	0	0	0	0	8 [1]	6	0	0	0	2	0
5261	0	0	0	0	0	0	0	5	4	0	0	0	1	0
5411	119	4	0	0	0	99	15	116	81	0	0	0	35	0
5511	8	0	0	0	1	6	1	11	8	0	0	0	3	0
5521	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5531	10	0	0	0	1	7	1	29	20	0	0	1	8	0
5541	23	1	0	0	3	17	3	23	16	0	0	1	6	0
5551	0	0	0	0	0	0	0	11	8	0	0	0	3	0
5941	80	3	0	0	0	67	10	19	13	0	0	0	6	0
5983	2	0	0	0	0	2	0	4 [1]	3	0	0	0	1	0

Appendix II

Community & Non-transient Non-community Ground Water Systems
Estimated Number of Waste Disposal Wells by State
(Assumes One Well per Establishment)

	NORTHERN MARIANA ISLANDS							U.S. VIRGIN ISLANDS						
SIC Code	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells	Number of Facilities	Facilities Served by POTWs	NPDES Permitted Facilities	AO Closures	Class IV Injection Wells	Facilities Outside SWPA	Total Number of Wells
5999	13	0	0	0	0	11	2	50	35	0	0	0	15	0
7261	2	0	0	0	0	2	0	4	3	0	0	0	1	0
7389	21 [1]	1	0	0	0	18	3	42 [1]	29	0	0	0	13	0
7514	16 [1]	1	0	0	2	12	2	40 [1]	28	0	0	2	10	0
7515	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7532	38 [1]	1	0	0	5	28	4	55 [1]	39	0	0	2	14	0
7533	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7537	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7538	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7539	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7542	1 [1]	0	0	0	0	1	0	6 [1]	4	0	0	0	2	0
7549	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7692	2 [1]	0	0	0	0	2	0	30 [1]	21	0	0	0	9	0
7694	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7699	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7999	39	1	0	0	0	33	5	44	31	0	0	0	13	0
8062	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8211	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8734	0	0	0	0	0	0	0	7 [1]	5	0	0	0	2	0
9111	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9224	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**548**	**20**	**0**	**0**	**12**	**447**	**69**	**674**	**472**	**0**	**0**	**6**	**195**	**1**

POTW Coverage	Wells in SWPA	POTW Coverage	Wells in SWPA
3.68%	13.44%	70.02%	0.29%

Percent of wells previously thought to be Class V, which are actually Class IV: 13%

Totals may not be exact due to rounding

[1] Data on the the number of facilities within this sic code may include similar facilities under the same major sic category heading.

Sources: U.S. Bureau of the Census, Economic and Government Censuses, 1992, the EPA Permit Compliance System database, the EPA AO database, the 1992 Biannual Needs Survey, and data on percentage of wells in Wellhead Protection Areas.

Appendix VI.A. Detailed Compliance Costs for Annual Injectate Monitoring

Waste Stream Scenario E and F: Motor Vehicle Related

	Magnitude	Unit	Unit Cost	Total
1. Contracted Sampling Labor	1	hr	$62.50	$62.50
2. Oil and Grease	1	ea	$92.10	$92.10
3. VOCs (SW 8620)	1	ea	$276.30	$276.30
4. Decontamination/Disposable Materials	2	ea	$6.92	$13.84
Subtotals Per Event				$444.74
Events	1	ls	$444.74	$444.74
Reporting (once 4 hr/report)	4	hr	$70.00	$280.00
Total Injectate Monitoring				**$724.74**

Waste Stream Scenario A, B, G, and H: Organics Only

	Magnitude	Unit	Unit Cost	Total
1. Contracted Sampling Labor	1	hr	$62.50	$62.50
2. VOCs (SW 8620)	1	ea	$276.30	$276.30
3. Decontamination/Disposable Materials	2	ea	$6.92	$13.84
Subtotal Per Event				$352.64
Events	1	ls	$352.64	$352.64
Reporting (once 4 hr/report)	4	hr	$70.00	$280.00
Total Injectate Monitoring				**$632.64**

Waste Stream Scenario C, D, I, and J: Organics and Metals

	Magnitude	Unit	Unit Cost	Total
1. Contracted Sampling Labor	1	hr	$62.50	$62.50
2. Metals Screen, Flame AA	5	ea	$18.42	$92.10
3. Metals Screen, Furnace	2	ea	$30.70	$61.40
4. VOCs (SW 8620)	1	ea	$276.30	$276.30
5. Decontamination/Disposable Materials	2	ea	$6.92	$13.84
Subtotal Per Event				$506.14
Events	1	ls	$506.14	$506.14
Reporting (once 4 hr/report)	4	hr	$70.00	$280.00
Total Injectate Monitoring				**$786.14**

This page is intentionally left blank.

Appendix VI.B. Detailed Compliance Costs for Quarterly Injectate Monitoring

Waste Stream Scenario E and F: Motor Vehicle Related

	Magnitude	Unit	Unit Cost	Total
1. Contracted Sampling Labor	1	hr	$62.50	$62.50
2. Oil and Grease	1	ea	$92.10	$92.10
3. VOCs (SW 8620)	1	ea	$276.30	$276.30
4. Decontamination/Disposable Materials	2	ea	$6.92	$13.84
Subtotals Per Event				$444.74
Events	4	ls	$444.74	$1,778.96
Reporting (twice 4 hr/report)	8	hr	$70.00	$560.00
Total Injectate Monitoring				**$2,338.96**

Waste Stream Scenario A, B, G, and H: Organics Only

	Magnitude	Unit	Unit Cost	Total
1. Contracted Sampling Labor	1	hr	$62.50	$62.50
2. VOCs (SW 8620)	1	ea	$276.30	$276.30
3. Decontamination/Disposable Materials	2	ea	$6.92	$13.84
Subtotal Per Event				$352.64
Events	4	ls	$352.64	$1,410.56
Reporting (twice 4 hr/report)	8	hr	$70.00	$560.00
Total Injectate Monitoring				**$1,970.56**

Waste Stream Scenario C, D, I, and J: Organics and Metals

	Magnitude	Unit	Unit Cost	Total
1. Contracted Sampling Labor	1	hr	$62.50	$62.50
2. Metals Screen, Flame AA	5	ea	$18.42	$92.10
3. Metals Screen, Furnace	2	ea	$30.70	$61.40
4. VOCs (SW 8620)	1	ea	$276.30	$276.30
5. Decontamination/Disposable Materials	2	ea	$6.92	$13.84
Subtotal Per Event				$506.14
Events	4	ls	$506.14	$2,024.56
Reporting (twice 4 hr/report)	8	hr	$70.00	$560.00
Total Injectate Monitoring				**$2,584.56**

This page is intentionally left blank.

Appendix VI.C. Detailed Compliance Costs Associated with Waste Minimization and BMPs

	Capital	O&M
I. Good Housekeeping Practices: Category 1		
1. Labels/Inventory	$0	$806
2. Install collection devices	$345	$0
3. Keep floors clean	$0	$115
4. Improve handling processes	$1,382	$345
	$1,727	$1,267
II. Parts Washer: Category 2		
1. Labels/Inventory	$0	$806
2. Install collection devices	$345	$0
3. Recycle wastes on-site solvent unit (assumes majority of service stations have not installed parts washer)	$5,757	$419
4. Keep floors clean	$0	$115
5. Collect Spills	$0	$0
6. Improve handling processes	$1,382	$345
	$7,484	$1,686
III. Solvent Recovery Unit: Category 3		
1. Labels/Inventory	$0	$806
2. Install collection devices	$115	$0
3. Recycle wastes on-site solvent unit	$0	$0
4. Keep floors clean	$23	$230
5. Mechanical Device for Material Removal	$115	$0
6. Improve handling processes	$3,569	$345
7. Maintain calibrate equipment	$0	$576
8. Install built-in distillation unit	$21,992	$0
9. Prewashing	$0	$1,957
10. Operate distillation unit properly	$1,151	$0
12. Inspect repair gaskets frequently	$0	$345
13. Inspect air relief valves	$0	$58
14. Inspect baffle assembly bi-weekly	$0	$288
	$26,966	$4,606
IV. Process Modifications: Category 4		
1. Labels/Inventory	$0	$1,036
2. Install collection devices	$691	$0
3. Recycle wastes on-site solvent unit	$3,915	$0
4. Keep floors clean	$23	$0
5. Mechanical Device for Material Removal	$115	$0
6. Improve handling processes	$1,151	$345
7. Maintain calibrate equipment	$0	$576
8. High quality fluids for use reduction	$2,763	$0
9. Add skimmer/coalescor	$15,889	$0
10. Use DI water instead of tap water	$2,188	$691
11. Additional treatment/chemical processes	$98,215	$0
12. Rotate electroplate bath	$1,151	$0
13. Replace barrel over bath	$0	$345
14. Use non-cyanide plating bath	$0	$0
15. Substitute cyanide cleaners	$0	$0
	$126,103	$2,994

This page is intentionally left blank.

Appendix VI.D. Detailed Compliance Costs Associated with Well Closure

	Capital	O&M
1. BMP Category 1 and 2		
1. Cleanout		
a) Pressure wash pipes	$461	$0
b) Transport off-site 25 mile one-way	$245	$0
c) Disposal at POTW (6,000 gal)	$11	$0
2. Fill well with clean inert material	$576	$0
	$1,293	$0
2. BMP Category 3 and 4		
1. Cleanout		
a) Pressure wash pipes	$461	$0
b) Transport off-site 25 mile one-way	$245	$0
c) Disposal at POTW (6,000 gal)	$11	
d) Fill Pipe with Grout	$2,303	$0
2. Fill well with clean inert material	$461	$0
	$3,480	$0

This page is intentionally left blank.

Appendix VI.E. Detailed Compliance Costs Associated with Off-site Waste Disposal

	Capital	O&M
Scenario A		
1. Transport to POTW		
a) Analysis (includes analysis and reporting per disposal trip)	$607	$480
b) Install holding tank (4 ft by 6 ft by 6 ft at 1,077 gallons)	$1,842	$0
c) Liquid transportation (1 trip of 25 miles)	$0	$981
d) POTW disposal (780 gal/year)	$0	$1
	$2,449	$1,463
2. Transport to Non-hazardous Sites		
a) Analysis (includes analysis and reporting per disposal trip)	$368	$368
b) Install holding tank (4 ft by 6 ft by 6 ft at 1,077 gallons)	$1,842	$0
c) Liquid transportation (1 trip of 50 miles)	$0	$491
d) Non-hazardous treatment facility disposal (780 gal/year)	$0	$1,209
	$2,210	$2,068
Scenario B		
1. Transport to POTW		
a) Analysis (includes analysis and reporting per disposal trip)	$607	$480
b) Install holding tank (4 ft by 6 ft by 6 ft at 1,077 gallons)	$1,842	$0
c) Liquid transportation (1 trip of 25 miles)	$0	$981
d) POTW disposal (780 gal/year)	$0	$1
	$2,449	$1,463
2. Waste Exchange		
a) Manager's time	$1,842	$0
b) Analysis (includes analysis and reporting per disposal trip)	$607	$480
c) Drums for shipping	$115	$63
d) Install holding tank for waste exchange (4 ft by 4 ft by 4 ft at 480 gal)	$1,497	$0
e) Liquid transportation (1 trip of 25 miles)	$0	$245
f) POTW disposal (390 gal/yr)	$0	$1
	$4,061	$789
3. Transport to Hazardous Sites		
a) Analysis (includes analysis and reporting per disposal trip)	$368	$1,474
b) Install holding tank (4 ft by 6 ft by 6 ft at 780 gallons)	$1,497	$0
c) Haz. Liquid transportation (4 trips of 200 miles each)	$0	$3,192
d) Hazardous treatment facility disposal (780 gal/year)	$0	$1,638
	$1,865	$6,304
Scenario C		
1. Transport to POTW		
a) Analysis (includes analysis and reporting per disposal trip)	$963	$536
b) Install holding tank (4 ft by 6 ft by 6 ft at 1,077 gallons)	$1,842	$0
c) Liquid transportation (1 trip of 50 miles)	$0	$245
d) POTW disposal (780 gal/year)	$0	$1
	$2,805	$783
2. Transport to Non-hazardous Sites		
a) Analysis (includes analysis and reporting per disposal trip)	$368	$368
b) Install holding tank (4 ft by 6 ft by 6 ft at 1,077 gallons)	$1,842	$0
c) Liquid transportation (1 trip of 50 miles)	$0	$491
d) Non-hazardous treatment facility disposal (780 gal/year)	$0	$1,209
	$2,210	$2,068

Scenario D		
1. Waste Exchange	$0	$0
a) Manager's time	$1,842	$0
b) Analysis (includes analysis and reporting per disposal trip)	$963	$536
c) Drums for shipping	$115	$63
d) Install holding tank for waste exchange (4 ft by 4 ft by 4 ft at 480 gal)	$1,497	$0
e) Liquid transportation (1 trip of 25 miles)	$0	$245
f) Non-hazardous treatment facility disposal (390 gal/year)	$0	$605
	$4,417	$1,449
2. Transport to Hazardous Sites		
a) Analysis (includes analysis and reporting per disposal trip)	$368	$1,474
b) Install holding tank (4 ft by 6 ft by 6 ft at 1077 gallons)	$1,497	$0
c) Haz. Liquid transportation (4 trips of 200 miles each)	$0	$3,192
d) Hazardous treatment facility disposal (780 gal/year)	$0	$1,638
	$1,865	$6,304
Scenario E1		
1. Transport to POTW		
a) Analysis (includes analysis and reporting per disposal trip)	$662	$536
b) Install holding tank (4 ft by 6 ft by 6 ft at 1,077 gallons)	$1,842	$0
c) Liquid transportation (1 trip of 25 miles)	$0	$245
d) POTW disposal (780 gal/year)	$0	$1
	$2,504	$783
2. Transport to Non-hazardous Sites		
a) Analysis (includes analysis and reporting per disposal trip)	$368	$368
b) Install holding tank (4 ft by 6 ft by 6 ft at 1,077 gallons)	$1,842	$0
c) Liquid transportation (1 trip of 50 miles)	$0	$491
d) Non-hazardous treatment facility disposal (780 gal/year)	$0	$1,550
	$2,210	$2,409
Scenario E2		
1. Transport to POTW		
a) Analysis (includes analysis and reporting per disposal trip)	$0	$536
b) Install holding tank (4 ft by 6 ft by 6 ft at 1,077 gallons)	$662	$0
c) Liquid transportation (1 trip of 25 miles)	$1,842	$245
d) POTW disposal (1000 gal/year)	$0	$2
Waste Oil Hauling (520 gal/year)		
e) Dexil Test	$17	$0
f) Hauling ($25/55 gal drum)	$0	$272
g) Disposal Fee ($0.20/gal)	$0	$120
h) Drums	$127	$0
	$2,648	$1,174
2. Waste Exchange		
a) Managers time	$1,842	$0
b) Analysis (includes analysis and reporting per disposal trip)	$662	$536
c) Drums for shipping	$461	$63
d) Install holding tank (6 ft by 12 ft by 12 ft at 6,460 gallons)	$1,842	$0
e) Liquid transportation (1 trips of 25 miles each)	$0	$245
f) POTW disposal (800 gal/year)	$0	$1
Waste Oil Hauling (520 gal/year)		
g) Dexil Test	$17	$0
h) Hauling ($25/55 gal drum)	$0	$272
i) Disposal Fee ($0.20/gal)	$0	$120
j) Drums	$127	$0
	$4,951	$1,237

3. Transport to Hazardous Sites		
a) Analysis (includes analysis and reporting per disposal trip)	$368	$1,474
b) Install holding tank (6 ft by 12 ft by 12 ft at 6,460 gallons)	$1,842	$0
c) Haz. Liquid transportation (4 trips of 200 miles each)	$0	$3,192
d) Hazardous treatment facility disposal (10,000 gal/year)	$0	$2,100
	$2,210	$6,766

Scenario F1

1. Transport to POTW		
a) Analysis (includes analysis and reporting per disposal trip)	$662	$1,071
b) Install holding tank (6 ft by 12 ft by 12 ft at 6,460 gallons)	$5,412	$0
c) Liquid transportation (1 trips of 25 miles each)	$0	$491
d) POTW disposal (10,000 gal/year)	$0	$18
	$6,074	$1,580

2. Transport to Non-hazardous Sites		
a) Analysis (includes analysis and reporting per disposal trip)	$368	$737
b) Install holding tank (6 ft by 12 ft by 12 ft at 6,460 gallons)	$5,412	$0
c) Liquid transportation (2 trips of 25 miles each)	$0	$491
d) Non-hazardous treatment facility disposal (10,000 gal/year)	$0	$15,500
	$5,780	$16,728

Scenario F2

1. Transport to POTW		
a) Analysis (includes analysis and reporting per disposal trip)	$662	$1,071
b) Install holding tank (6 ft by 12 ft by 12 ft at 6,460 gallons)	$5,412	$0
c) Liquid transportation (2 trips of 25 miles each)	$0	$491
d) POTW disposal (10,000 gal/year)	$0	$18
Waste Oil Hauling (520 gal/year)		
a.) Dexil Test	$17	$0
b.) Hauling ($25/55 gal drum)	$0	$272
c.) Disposal Fee ($0.20/gal)	$0	$120
d.) Drums	$127	$0
	$6,218	$1,971

2. Waste Exchange		
a) Managers time	$1,842	$0
b) Analysis (includes analysis and reporting per disposal trip)	$662	$1,071
c) Drums for shipping	$461	$63
d) Install holding tank (6 ft by 12 ft by 12 ft at 6,460 gallons)	$5,412	$0
e) Liquid transportation (2 trips of 25 miles each)	$0	$245
f) POTW disposal (8,000 gal/year)	$0	$605
Waste Oil Hauling (520 gal/year)		
g) Dexil Test	$17	$0
h) Hauling ($25/55 gal drum)	$0	$272
i) Disposal Fee ($0.20/gal)	$0	$120
j) Drums	$127	$0
	$8,521	$2,376

2. Transport to Non-hazardous Sites		
a) Analysis (includes analysis and reporting per disposal trip)	$368	$1,747
b) Install holding tank (6 ft by 12 ft by 12 ft at 6,460 gallons)	$5,412	$0
c) Liquid transportation (2 trips of 25 miles each)	$0	$3,192
d) Non-hazardous treatment facility disposal (10,000 gal/year)	$0	$21,000
	$5,780	$25,939

Scenario G

1. Transport to POTW		
a) Analysis (includes analysis and reporting per disposal trip)	$607	$480
b) Install holding tank (4 ft by 6 ft by 6 ft at 1,077 gallons)	$5,412	$0
c) Liquid transportation (1 trip of 25 miles)	$0	$245
d) POTW disposal (800 gal/year)	$0	$10
	$6,019	$735
2. Transport to Non-hazardous Sites		
a) Analysis (includes analysis and reporting per disposal trip)	$368	$368
b) Install holding tank (4 ft by 6 ft by 6 ft at 1,077 gallons)	$5,412	$0
c) Liquid transportation (1 trip of 50 miles)	$0	$491
d) Non-hazardous treatment facility disposal (780 gal/year)	$0	$8,060
	$5,780	$8,919

Scenario H

1. Transport to POTW		
a) Analysis (includes analysis and reporting per disposal trip)	$607	$480
b) Install holding tank for waste exchange (4 ft by 6 ft by 6 ft at 1077 gal)	$5,412	$0
c) Liquid transportation (1 trip at 25 miles)	$0	$245
d) POTW disposal (2,600 gal/yr)	$0	$10
	$6,019	$735
2. Waste Exchange		
a) Manager's time	$1,842	$0
b) Analysis (includes analysis and reporting per disposal trip)	$607	$480
c) Install holding tank for waste exchange (4 ft by 4 ft by 4 ft at 480 gal)	$1,497	$0
d) Install holding tank (6 ft by 8 ft by 8 ft at 2872)	$2,896	$0
e) Liquid transportation (1 trip of 25 miles)	$0	$245
f) POTW disposal (390 gal/yr)	$0	$5
	$6,842	$730
3. Transport to Hazardous Sites		
a) Analysis (includes analysis and reporting per disposal trip)	$368	$1,474
b) Install holding tank (4 ft by 4 ft by 4 ft at 2,872 gallons)	$2,896	$0
c) Haz. Liquid transportation (4 trips of 200 miles each)	$0	$3,192
d) Hazardous treatment facility disposal (5,200 gal/year)	$0	$10,920
	$3,264	$15,586

Scenario I

1. Transport to POTW		
a) Analysis (includes analysis and reporting per disposal trip)	$963	$536
b) Install holding tank (6 ft by 12 ft by 12 ft at 6,460 gallons)	$5,412	$0
c) Liquid transportation (1 trip per year 25 miles)	$0	$245
d) POTW disposal (5,200 gal/year)	$0	$10
	$6,375	$791
2. Transport to Non-hazardous Sites		
b) Analysis (includes analysis and reporting per disposal trip)	$368	$368
c) Install holding tank (6 ft by 12 ft by 12 ft at 6,460 gallons)	$5,412	$0
d) Liquid transportation (1 trip of 50 miles)	$0	$3,192
e) Non-hazardous treatment facility disposal (5,200 gal/year)	$0	$8,060
	$5,780	$11,620

Alt. 1. B. Waste Exchange / Tank / Transport - Non-hazardous (High Flow): Scenario J		
a) Sewer 50% (5,200 gal/year)	$0	$0
b) Manager's time	$1,842	$0
c) Analysis (includes analysis and reporting per disposal trip)	$963	$536
d) Install holding tank for waste exchange (4 ft by 6 ft by 6 ft at 1,077 gallons)	$1,842	$0
e) Install holding tank (6 ft by 12 ft by 12 ft at 6,460 gallons)	$5,412	$0
f) Liquid transportation (1 trip of 50 miles)	$0	$491
g) Non-hazardous treatment facility disposal (5,200 gal/year)	$0	$8,060
	$10,059	$9,087

Scenario J

1. Waste Exchange		
a) Manager's time	$1,842	$0
b) Analysis (includes analysis and reporting per disposal trip)	$963	$536
c) Install holding tank for waste exchange (4 ft by 6 ft by 6 ft at 1077 gal)	$5,412	$0
d) Install holding tank (6 ft by 12 ft by 12 ft at 6,460 gal)	$1,842	$0
e) Liquid transportation (1 trip of 50 miles)	$0	$491
f) Non-hazardous treatment facility disposal (5200 gal/year)	$0	$8,060
	$10,059	$9,087
2. Transport to Non-hazardous Sites		
a) Analysis (includes analysis and reporting per disposal trip)	$368	$1,474
b) Install holding tank (6 ft by 12 ft by 12 ft at 6,460 gallons)	$5,412	$0
c) Liquid transportation (1 trips of 50 miles each)	$0	$3,192
d) Non-hazardous treatment facility disposal (5,200 gal/year)	$0	$10,920
	$5,780	$15,586

This page is intentionally left blank.

Appendix VI.F

Cost Associated with Preparation and Submission of Permit Application for Operating Motor Vehicle Waste Disposal Wells Under the Proposed Regulation

CFR Citation	Description of Requirements	Management Hours @$32/hr	Technical Hours @$22/hr	Clerical Hours @$12/hr	Total Hours	Total Costs
Requirements associated with permit application- one time costs						
	Read permit application directions	2	4	2	8	$176
144.31(e) (1-8)	Gather and submit: a description of activities requiring a permit, inventory information, listing of relevant permits or construction approvals, topographic maps, description of the business, and an analysis of the injectate.	5	13	15	33	$626
144.31(e) (10)	Prepare and submit plugging and abandonment plan which includes financial assurance.	1	8	4	13	$256
	Prepare and submit contingency plans	2	20	8	30	$600
Total one-time costs						$1,658
Reporting requirements (costs incurred yearly)						
144.51(l) (4)	Report on required monitoring at each quarter every year	4	4	4	12	$264
Record keeping requirements - (costs incurred yearly)						
144.51(j) (2)	Maintain all monitoring results at each quarter every year	-	-	4	4	$48
Total yearly costs						$312

Assuming that a permit is required every 10 years, cost associated with permit application and reporting for 20 years is calculated as:

$$Compliance\ costs_{permit} = \frac{[X + \frac{X}{(1+0.07)^{10}}] * 0.07 * (1+0.07)^{20}}{(1+0.07)^{20} - 1} + Y$$

where X is the one-time cost associated with permit application (incurred every ten years) and Y is the reporting cost.

Appendix VI.G. Detailed Compliance Costs for Remediation

Motor Vehicle Waste Disposal Wells: Remediation Costs

	Capital	O&M
I. Soil Sampling		
1. Oversight and sampling	$875	$0
2. Sample Analysis	$2,996	$0
	$3,871	$0
II. Soil Excavation, Transportation, and Treatment/Disposal		
Alt. 1.A. Treatment/Disposal (for non-hazardous soil)		
1. Excavation (56 tons at $30 per ton)	$1,680	$0
2. Transportation (1 trip, 25 miles at $7 per ton)	$392	$0
3. Treatment/Disposal at non-hazardous landfill ($30 per ton)	$1,680	$0
	$2,072	$0
Alt. 1. B. Treatment/Disposal (for non-hazardous soil)		
1. Excavation (56 tons at $30 per ton)	$1,680	$0
2. Transportation (1 trip, 25 miles at $7 per ton)	$392	$0
3. Treatment/Disposal at non-hazardous thermal treatment plant ($50 per ton)	$2,800	$0
	$4,872	$0
Alt. 1. C. Treatment/Disposal (for hazardous soil)		
1. Excavation (56 tons at $30 per ton)	$1,680	$0
2. Transportation (1 trip, 100 miles at $53 per ton)	$2,968	$0
3. Treatment/Disposal at hazardous thermal treatment plant ($350 per ton)	$19,600	$0
	$24,248	$0

Industrial Wells: Detailed Remediation Costs

	Capital	O&M
I. Soil Sampling		
1. Oversight and sampling	$875	$0
2. Sample Analysis	$2,996	$0
	$3,871	$0
II. Soil Excavation, Transportation, and Treatment/Disposal		
Alt. 1.A. Treatment/Disposal (for non-hazardous soil)		
1. Excavation (56 tons at $30 per ton)	$1,680	$0
2. Transportation (1 trip, 25 miles at $7 per ton)	$392	$0
3. Treatment/Disposal at non-hazardous landfill ($30 per ton)	$1,680	$0
	$2,072	$0
Alt. 1. B. Treatment/Disposal (for non-hazardous soil)		
1. Excavation (56 tons at $30 per ton)	$1,680	$0
2. Transportation (1 trip, 25 miles at $7 per ton)	$392	$0
3. Treatment/Disposal at non-hazardous thermal treatment plant ($50 per ton)	$2,800	$0
	$4,872	$0
Alt. 1. C. Treatment/Disposal (for hazardous soil)		
1. Excavation (56 tons at $30 per ton)	$1,680	$0
2. Transportation (1 trip, 100 miles at $53 per ton)	$2,968	$0
3. Treatment/Disposal at hazardous thermal treatment plant ($350 per ton)	$19,600	$0
	$24,248	$0

This page is intentionally left blank.

Appendix VI.H. Cesspools: Detailed Compliance Costs

	Capital	O&M
a) Sewer 0% (10,400 gal/year)	$0	$0
b) Analysis (includes analysis and reporting per disposal trip)	$607	$1,921
c) Install holding tank (6 ft by 12 ft by 12 ft at 6,460 gallons)	$5,412	$0
d) Liquid transportation (4 trip per year 25 miles)	$0	$981
e) POTW disposal (10,400 gal/year)	$0	$19
	$6,019	$2,922

*Totals may not be exact due to rounding.

This page is intentionally left blank.