Appendices to the Economic Analysis for the Final Long Term 2 Enhanced Surface Water Treatment Rule

Volume I (A – G)

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Appendix A
Pre-LT2ESWTR Removal Credit

A.1 Introduction

To assess the costs and benefits of the LT2ESWTR appropriately, it is necessary to estimate how many plants will be required to provide treatment as a result of the rule and the level of treatment they must provide. One essential factor in performing this assessment is determining the number of plants that may be able to get *Cryptosporidium* removal credit for treatment technologies already in place. This appendix discusses the various technologies that could earn removal credit and will estimate the percentage of plants by size category that have or will have such technologies in place prior to promulgation of the LT2ESWTR.

Specifically, this appendix addresses the following toolbox technologies:

- Combined filter performance;
- Softening plants with multiple settling basins;
- Conventional plants with multiple settling basins; and
- Multiple filters.

Data sources and the population size categories are discussed first, followed by an analysis of each treatment configuration. The appendix concludes with a summary of log removal credits for existing treatment.

A.2 Data Sources

A number of information sources were reviewed to determine the performance and layouts of surface water treatment plants. A summary of each source, the information it contains, and its advantages and disadvantages follow.

A.2.1 The Information Collection Rule (ICR), USEPA 1996

The ICR was a survey EPA conducted from 1997 through 1998. It consists of 18 months of data collected from all large systems serving over 100,000 people. Information in the survey included water quality parameters, such as turbidity and pH, along with process units in the plant and their sequences. The ICR survey is the most comprehensive database available for large systems.

A.2.2 Partnership for Safe Drinking Water Data, 1999

Analyses in this appendix draw from the year 2000 annual report for the Partnership for Safe Drinking Water (the Partnership), as well as additional turbidity data that EPA gathered and analyzed. The Partnership is a cooperative effort among EPA and several professional water associations. Plants in the Partnership undergo voluntary audit programs in an effort to improve their plant performance and achieve better water quality. According to the annual report, about 211 of the total Partnership plants were large plants serving more than 100,000 people, 81 were medium plants serving between 10,000 and

100,000 people, and 33 were small plants serving fewer than 10,000 people. All of these plants were surface water plants. Because of this representation, the survey is best suited for use with large systems. It is less appropriate to use for medium systems, although with a sample size of 81 medium plants, it is probably a fair representation of medium plants. It is probably inadequate to represent small systems as its small plants are less than half a percent of the small plants nationwide and most of the plants in the database are larger systems. Because the Partnership is a voluntary association of plants actively seeking to improve water quality, these plants are likely to perform better than plants nationwide.

A.2.3 American WaterWorks Association (AWWA) Water:\Stats Database, 1996

The AWWA Water:\Stats Database contains the results of a survey of the AWWA's members conducted in 1996. It contains information on the treatment processes in place at the plants that responded to the survey along with information on disinfection byproducts and other water quality parameters. The database includes information on 1,134 treatment plants. Of these, 377 are large plants, 722 are medium plants, and only 35 of the plants are small plants. Of these plants, 540 were surface water plants. Because of the large number of medium plants, this is probably the best available source of data for medium plants. It is also a good source of data for large plants. The small number of small plants probably makes this source less adequate for characterization of small plants.

A.2.4 Community Water Systems Survey (CWSS), 1995

The CWSS was conducted by EPA in 1995. It surveyed 2,000 community water systems across all size categories. It includes information on the type of treatment processes the plants have in place. Although the sample size in this survey is adequate to represent plants in all size categories nationwide, there are some significant problems with using this data source to estimate in-place treatment technologies. First, there was a large number of non-responses to the survey, especially by small systems. There was also a great deal of confusion over the wording of many of the questions on the survey, leading to difficulty in classifying many of the process units. This resulted in a large number of processes being classified in "other" categories. As a result, this survey is probably the least reliable source used in this analysis.

A.2.5 National Rural Water Association (NRWA) Survey, 2000

This survey of members of the NRWA was conducted in 1999-2000. It includes data on water quality parameters, as well as treatment configurations. The survey includes information on 129 small surface water systems that do not constitute a random sample of all small systems. The water quality data also include two samples per plant instead of the monthly data included in other surveys.

A.2.6 Regulatory Impact Analyses (RIAs) for the Interim Enhanced Surface Water Treatment Rule (IESWTR) (1998) and the Proposed Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR) (2000)

These reports analyzed the impact of these two rules on surface water systems. The reports include characterization of plants' performance prior to the promulgation of these rules and predictions concerning what types of treatments plants would need to add to comply with these rules.

A.2.7 Interview of Industry Experts

To assess the applicability of the various data sources and the assumptions made about them, industry experts were interviewed on the topics analyzed in this appendix. Experts on the subjects of small systems, large systems, data surveys, and treatment technologies were interviewed. The experts were asked questions concerning the validity and applicability of the data sources listed above. They were also questioned regarding the reasonableness of the assumptions in this appendix.

A.3 Comparison and Use of Data Sources

Using the expert opinion and information from each of the sources, determinations were made on which data sources to use for each of the size categories and treatment categories.

A.3.1 Large Systems

The ICR is a comprehensive survey that was mandated of all large systems in the country. The large number of systems makes it the most comprehensive and least biased source of information for large systems. In addition, although the information on treatment trains was self-reported, EPA performed a data quality check that should have lessened inconsistencies in reporting. Both Water:\Stats and CWSS were voluntary surveys with non-response rates much greater than 50 percent. The low response rate could lead to some bias in the data. There was also little independent review of the data, which means that there could be inconsistent labeling of process units. This was a noted problem in CWSS. Therefore, ICR data were used preferentially for large systems to obtain treatment train data. The Partnership data were used for information on turbidity. For treatment processes that could not be determined from ICR data, Water:\Stats or the CWSS was used.

A.3.2 Medium Systems

Water:\Stats and CWSS are the two main sources of data about treatment trains for medium water systems. They contain similar numbers of medium systems and both were voluntary surveys with high non-response rates. There was some confusion noted with the listing of technologies in the CWSS survey that may have led to a higher rate of misclassification than with Water:\Stats. There was not enough information, however, to favor one data source clearly over the other, so the two were considered equivalent; data that existed in both databases were averaged.

Medium and large plants have been found to be similar both in terms of water quality and treatment effectiveness. Examining the medium and large plants in Water:\Stats revealed that source water quality as measured by source turbidity and finished water quality as measured by disinfection by-products were nearly identical for medium and large plants (see USEPA 2003d Appendix B). Therefore, the types and effectiveness of the treatment processes are thought to be fairly similar, and using data from large plants (ICR data) for medium plants results in an acceptable estimate of medium plants. For this reason, ICR data were used for medium plants when specific information on medium plants was unavailable. For turbidity, data from the Partnership were used. The Partnership data are an aggregate of medium and large plants, but they are acceptable to apply to medium plants.

A.3.3 Small Systems

Water:\Stats database contains information on only 33 small plants. Therefore, this source was not used for small plants. CWSS contains the largest number of small plants of all the data sources. The size of the sample may offset the possible misclassification and the low response rate. The NRWA

survey has a smaller number of plants that are less representative of the national population. However, the survey was conducted by making site visits to the plants, so there is probably less miscategorization of data. For that reason, NRWA was used as the preferential database for small systems with CWSS being used when data were unavailable from NRWA. For turbidity data, the data collected for the proposed LT1ESWTR RIA (USEPA 2000j) were used, as they contained the largest number of plants and were of better quality.

A.4 Population Size Categories Evaluated

Because of the limited number of plants in many of the above sources, it was decided not to split plants into nine population categories as is traditionally done in such analyses. Such a split would leave many of the small size categories with too few plants to be statistically significant. Therefore, only the small ($\leq$ 10,000), medium (10,001-100,000), and large (> 100,000) population size categories were used for analysis.

A.5 Combined Filter Performance

The combined filter performance option requires systems to achieve turbidity of 0.15 NTU in the combined filter effluent (CFE). Conventional plants will need to meet the requirements of 0.3 NTU 95 percent of the time in the CFE per the IESWTR and the LT1ESWTR. Plants that can optimize their process to achieve 0.15 NTU 95 percent of time in the CFE will be able to receive an additional 0.5 log *Cryptosporidium* removal credit for the LT2ESWTR.

A.5.1 Medium and Large Plants–Turbidity

To determine the number of medium and large plants that can achieve the *Cryptosporidium* reduction credit for the combined filter performance option prior to implementation of the IESWTR, 1999 data from the Partnership were examined. The data include turbidity results from 220 plants of the 325 that are members of the Partnership. As noted earlier, most plants in the Partnership are in the medium and large size categories, so this data set is assumed to be representative of medium and large plants.

A.5.2 Pre-IESWTR

Exhibit A.1 summarizes these data, showing the percentage of plants that exceed monthly 95th percentile turbidities of 0.1, 0.2, and 0.3 for a given number of months. To interpret the exhibit, consider the following example: the value for 1 month and 0.3 NTU is 20 percent. This means that 20 percent of the plants exceeded 0.3 NTU in their CFE for at least 1 month out of the year. Conversely, 80 percent of the plants never exceeded a 95th percentile turbidity value of 0.3 NTU.

To estimate the percentage of plants in the Partnership below 0.15 for all months, linear interpolation was used. From Exhibit A.1, estimates of plants above 0.1 and 0.2 NTU for any given month are 42 percent and 74 percent, respectively. The value for 0.15 NTU would then be:

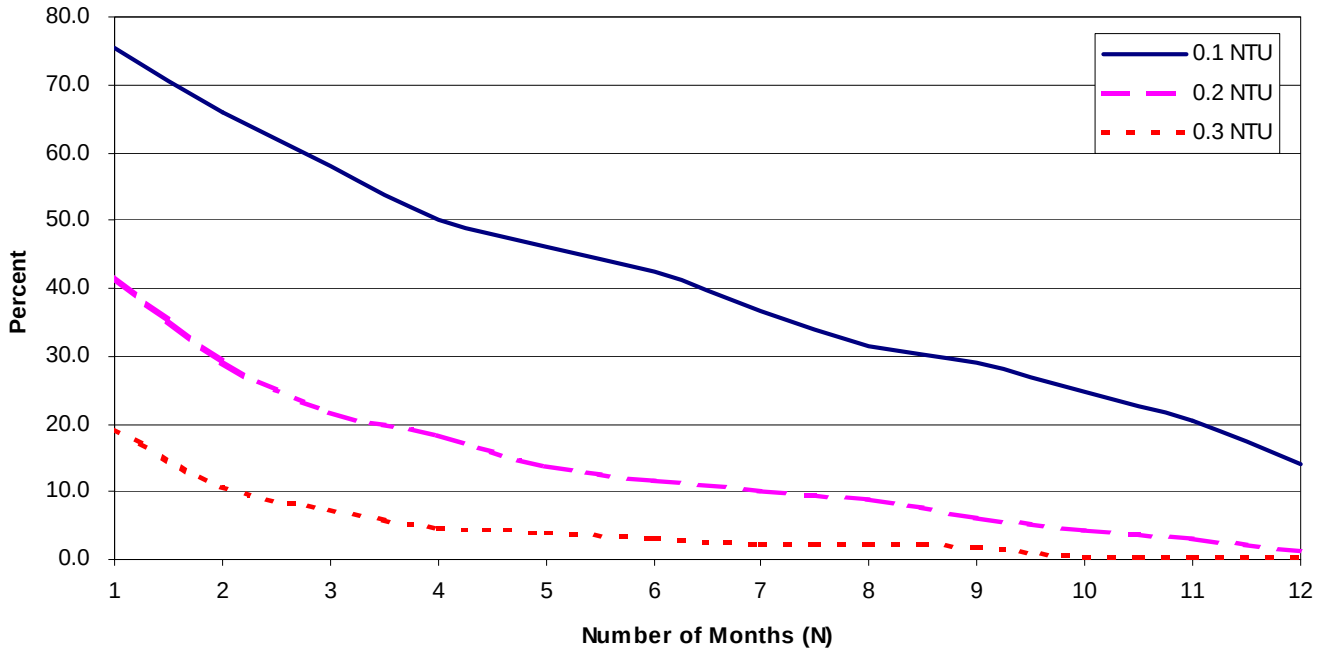
$$(42\% + 74\%)/2 = 58\%.$$

Therefore, 42 percent (100 percent - 58 percent) of plants did not exceed 0.15 NTU and met the requirement to obtain the 0.5 log *Cryptosporidium* removal credit (less than 0.15 NTU 95 percent of the time).

To extrapolate Partnership estimates directly to all medium and large plants nationwide may be misleading. The plants in the Partnership tend to be the largest, best run plants in the country. Also, by virtue of their voluntary participation in the program, these plants are likely to be dedicated to improving plant performance. This may lead to plants in the Partnership performing better than those not in the Partnership. Therefore, other information was evaluated to determine the percent of medium and large plants that can obtain these values.

The Technical Work Group (TWG) for the IESWTR estimated the number of conventional systems that would need to take action to achieve 95th percentile turbidity goals of 0.1, 0.2, and 0.3 NTU. The TWG estimated that there would be no difference in the number of plants that would need to make changes to achieve 0.1 and 0.2 NTU; there would only be changes in the type of treatment they would use. Examining Exhibit 5.2 of the IESWTR RIA (USEPA 1998b) shows the TWG determined that 20 percent of medium systems and 23 percent of large systems would not have to make changes to comply with a 0.1 or 0.2 NTU 95th percentile turbidity limit. These values were used to represent the levels that all plants could achieve prior to implementation of the LT2ESWTR. The Partnership plants were not analyzed separately as the IESWTR analysis would have already taken these plants into account.

Exhibit A.1 Percent of Plants that Exceeded 95th Percentile Monthly Turbidity at least N out of 12 Months



Source: Personal Communication, Eric Bissonnette, EPA 2/28/01.

Exhibit A.2 summarizes the estimated percentage of Partnership plants and all plants estimated to be meeting the combined filter performance requirement prior to the IESWTR.

Exhibit A.2: Percentage of Medium and Large Plants Estimated to Meet Combined Filter Performance Requirements (Pre-IESWTR and Pre-LT1ESWTR)

Size Category (Population Served)	Total Plants in Size Category	No. of Plants in Partnership [1]	Percent of Partnership Plants Meeting < 0.15 NTU [2]	Percent of All Plants Meeting < 0.15 NTU [3]
	a	b	c	d
Medium (> 10k and ≤ 100k)	1,645	81	42%	20%
Large (> 100k)	464	211	42%	23%
Total	2,371	325		

[1] Number of all plants in the country in the given size category that belong to the Partnership. Estimated from Partnership for Safe Water Annual Data Summary Report - January 2000.

[2] Estimated from EPA evaluation of Partnership data (personal communication from Eric Bissonette, EPA 2-28-01).

[3] Derived from Exhibit 5.2 of the RIA for the IESWTR (USEPA 1998b).

A.5.3 Post-LT1ESWTR/IESWTR

Exhibit A.2 summarizes data from 1999 or before, prior to implementation of the IESWTR. It is expected that many plants will improve filter performance to comply with the requirements of IESWTR. The Regulatory Impact Analysis (RIA) for the IESWTR (USEPA 1998b) estimates that approximately 51 percent of medium and 46 percent of large systems will modify their treatment processes to comply with the rule requirements. Plants are expected to make changes such as adding additional polymer, automating filter monitoring and control, and implementing better filter inspection and maintenance programs. These are plants that would not have been performing at these turbidity levels in 1999, but are predicted to achieve lower turbidity limits of at least 0.3 NTU before the promulgation of the LT2ESWTR. It is reasonable to assume that some plants that make changes to achieve 0.3 NTU will also be able to achieve 0.15 NTU without additional changes. To estimate the percentage of these plants that will achieve the additional removal to levels of 0.15 NTU 95 percent of the time after implementation of the LT1ESWTR and IESWTR, the following assumptions were used:

- The ratio of plants that achieve 0.15 NTU to those that achieve 0.3 NTU is the same for the universe of plants.

- Based on Partnership data (Exhibit A.1), about half the plants that achieve 0.3 NTU (80 percent) also achieve 0.15 NTU (42 percent).

Although the Partnership plants tend to be run better on the whole, many of the elements of the Partnership program are similar to those required by the IESWTR. For example, both the IESWTR and the Partnership require filter benchmarking and peer reviews. Therefore, using the ratio of Partnership plants that achieve 0.3 NTU to those that achieve 0.15 NTU is a reasonable proxy for how all plants might be expected to perform after the IESWTR and LT1ESWTR are implemented. Applying this percentage (50 percent) to the percent of medium and large plants expected to implement filter changes to comply with the IESWTR (51 and 46 percent respectively) gives 26 and 23 percent of medium and large plants, respectively. For example, for large systems:

% achieving 0.15 NTU = (% achieving 0.3 NTU)*(% achieving 0.3 NTU that can achieve 0.15 NTU)
= (46%)*(50%)
= 23%

It should be noted that these numbers may be slightly optimistic because many plants may also have to change operations to remove more total organic carbon (TOC) to meet Stage 1 Disinfection By-Products Rule requirements. Increasing TOC removal may interfere with turbidity removal in some plants. The percent of plants qualifying for the credit above are in addition to the plants that were calculated as meeting the requirements for the 0.5 log removal credit before promulgation of IESWTR. Exhibit A.3 summarizes the percentage of plants estimated to achieve the combined filter performance requirements at the time the LT2ESWTR takes effect.

Exhibit A.3: Percentage of Plants meeting Combined Filter Performance Requirements (0.15 NTU 95% of the time)

Size (Population Served)	Pre IESWTR Conditions	Additional Plants Meeting Combined Filter Performance Following IESWTR	Total Percent Meeting Combined Filter Performance, Pre-LT2SWTR
Medium (> 10k and < =100k)	20%	26%	46%
Large (> 100k)	23%	23%	46%

Source: Derived from Exhibits A.1 & A.2 and IESWTR (USEPA 1998b) and proposed LT1ESWTR (USEPA 2000j) RIAs.

A.5.4 Small Systems

Small systems—those serving 10,000 people or less—are evaluated separately from medium and large systems for several reasons. Small systems often have better source water quality and, therefore, require less rigorous treatment technologies. They also tend to have less advanced control systems, less sophisticated monitoring equipment, and less operator training. Small plants tend to use conventional treatment trains less often than medium and large plants. Small systems typically prefer package plants[1] including such technologies as membranes, direct filtration, and cartridge filtration. Although such plants may be able to obtain credit for those alternative technologies, they would not obtain credit for combined filter performance.

A review of available data showed only two available data sources for small plants: NRWA data and turbidity data collected for the proposed LT1ESWTR RIA. The NRWA survey included data from 129 surface water plants. There are several issues to take into account when considering the NRWA data. The first is the small sample size. There are only 129 plants in the survey of which only 51 are conventional plants; only conventional plants would be eligible for combined filter performance credit. The plants were also not selected to represent a statistically valid nationwide sampling. The second issue is that the NRWA data consist of only two grab samples taken during the year in contrast to the Partnership data, which consist of the 95th percentile values of samples taken every 15 minutes. Such

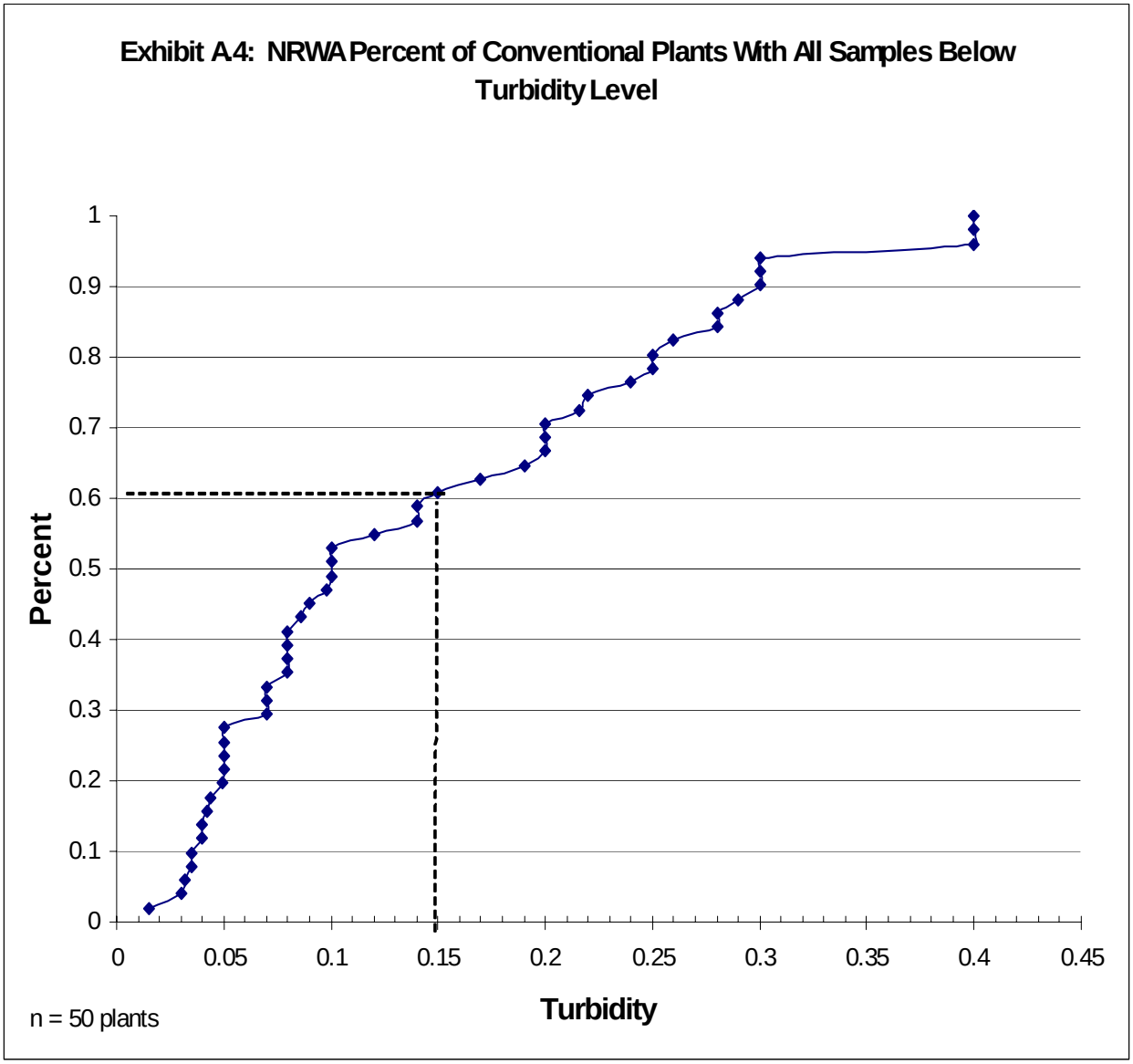
[1] A package plant is a plant that treats small amounts of water and is modular, usually shipped from the factory whole. The plants need only to be hooked up to an inlet and outlet pipe to be operational.

grab samples would likely miss seasonal peaks, as well as system spikes. Therefore, the samples are more likely to be representative of an average or 50th percentile value than a 95th percentile value. For this reason, the data collected for the LT1ESWTR were used as the primary data source.

The RIA for the proposed LT1ESWTR examined turbidity data for 187 small surface water plants from 13 states. Two of these states reported 95th percentile turbidity data, six reported multiple daily turbidity values, and five reported maximum daily values. These regular values give a much better representation of the performance of small plants than the two annual points of the NRWA data. The data showed that 27 percent of small plants never exceeded a 95th percentile turbidity value of 0.15 NTU and 48 percent of small plants never exceeded 0.3 NTU. Therefore, 27 percent of plants were assumed to be able to perform well enough to obtain the combined filter performance *Cryptosporidium* removal credit.

The NRWA data were also examined to check the reasonableness of the results based on the proposed LT1ESWTR RIA. Exhibit A.4 shows the maximum turbidity values of small conventional plants in the NRWA survey. Sixty percent of the plants had both samples below 0.15 NTU. As mentioned earlier, this is probably closer to the 50th percentile than the 95th percentile. The RIAs for the IESWTR and the proposed LT1ESWTR assumed that plants would target 0.1 NTU under regular operation to meet 0.2 NTU limits 95 percent of the time. To be consistent with these analyses, plants were estimated to target an average of 0.075 NTU in order to achieve 0.15 NTU 95 percent of the time. Examining Exhibit A.4 shows that approximately 30 percent of small conventional plants never exceeded 0.075 NTU in the NRWA survey. This value is less than the value for medium and large plants and close to the value derived from the proposed LT1ESWTR data. Therefore, the numbers derived from the proposed LT1ESWTR data were considered supported by the NRWA data. As mentioned above, the smaller plants would not be expected to perform as well because of less operator training, less sophisticated monitoring and control equipment, and less redundancy in systems. As a result, problems in a single piece of equipment are more likely to affect the process.

In addition to evaluating performance of conventional filtration in small plants, this analysis recognizes that there is a much smaller percentage of small conventional plants than in large and medium systems. Approximately 40 percent of the NRWA plants were conventional. If only 27 percent of these can meet the 0.15 NTU performance criteria in the CFE 95 percent of the time, then only 11 percent (0.4*0.27 = 0.11) of small plants nationwide would qualify for the 0.5 log *Cryptosporidium* removal credit. The estimate (11 percent) was used to represent Pre-LT1ESWTR removal credit for small plants.



Source: National Rural Water Association (NRWA) Survey User Database (USEPA 2001b)

Additional plants may be able to meet the lower turbidity requirements after implementation of the LT1ESWTR. The RIA for the proposed LT1ESWTR estimated that 41 percent of small surface water plants would make filtration improvements to comply with the rule. Therefore, 41 percent of small systems would achieve 0.3 NTU. To calculate the percent that will achieve 0.15 NTU, the ratio of small plants achieving 0.15 NTU to those achieving 0.3 NTU from the LT1ESWTR RIA data (0.56) is used, assuming the ratio is constant as in the large and medium plant analysis. Using this ratio gives 23 percent (0.41 x 0.56) of small plants that would meet the 0.15 NTU limit 95 percent of the time. Added to the Pre-LT1ESWTR percentage of 11 percent gives a total of 34 percent of small surface water plants that could obtain the 0.5 log *Cryptosporidium* removal credit for combined filter performance.

A.6 Plants with Multiple Sedimentation Basins in Series

Plants with multiple sedimentation basins in series will generally receive a 0.5 log removal credit for the LT2ESWTR. These plants could be softening or conventional plants. Examining the ICR database for softening plants, all plants listed as "two stage softening plants" or as "coagulation/sedimentation softening plants" meet this requirement. There were 16 and 18 percent of all softening plants in these categories, respectively. Therefore, this analysis estimates that 34 percent (16 + 18%) of softening plants could qualify for the credit. As there were no such data in CWSS or Water:\Stats, the ICR value was used for all medium and large plants. NRWA indicated 1.5 percent of small systems had multiple basins. This percentage was used for small softening systems. To estimate the total percent of softening plants with multiple sedimentation basins, the percentage of softening plants assumed to have multiple basins (34 percent) was then multiplied by the total percent of all plants that are softening based on CWSS data.

ICR data show that approximately 3 percent of large conventional plants have multiple sedimentation basins in series. Water:\Stats and CWSS do not distinguish the number of basins, only whether they are present or not. The NRWA survey, however, did provide data on multiple basins, showing that 1.5 percent of small systems had multiple basins. This number was used for small systems. The ICR number was used for medium and large plants. The total number of plants with multiple sedimentation basins in series would be a sum of the conventional and softening plants with multiple basins in series. Exhibit A.5 shows the resulting data.

Exhibit A.5: Percentage of Plants with Multiple Sedimentation Basins

Size (Population Served)	Softening	Conventional	Total
Small (≤ 10k)	1.5%	1.5%	3%
Medium (10k - 100k)	2%	3%	5%
Large (> 100k)	2%	3%	5%

Source: ICR Aux1 Database (USEPA 2000h) and NRWA Survey User Database (USEPA 2001b)

A.7 Multiple Filters in Series

EPA intends to grant a 0.5 log credit for plants having multiple filters in series.

ICR and CWSS did not differentiate between GAC alone and GAC as a polishing filter. The Water:\Stats database, however, does contain more detailed information on GAC filters. Exhibit A.6 shows the percent of medium and large plants that have a GAC filter in addition to conventional filters as listed in Water:\Stats**.** The NRWA survey showed no plants that had a GAC filter following a conventional filter. As with adsorption clarifiers, it was assumed that no plants had such technologies in addition to a conventional treatment train, but are used in addition to other processes such as direct filtration. Therefore, no small plants were assumed to have this technology. Exhibit A.6 summarizes the percent of plants with multiple filters in series.

Exhibit A.6: Percentage of Plants with Multiple Filters in Series

Size (Population Served)	GAC
Small (≤ 10k)	0%
Medium (10k - 100k)	4%
Large (> 100k)	7%

Source: AWWA Water:\Stats Database for GAC.

A.8 Summary

Treatment configurations in place at the time of rule promulgation are considered "credits." In other words, neither the costs nor the benefits of those configurations can be ascribed to the LT2ESWTR. Plants with these configurations are placed into a bin that is either 0.5 or 1.0 log less than what their occurrence would require of them. For example, a system in a 2.0 log treatment bin that had a 1.0 log treatment credit would need only to install a technology that obtained 1.0 log credit. In this way, neither the costs nor the benefits from existing technologies are ascribed to this rule.

Exhibit A.7 summarizes the percent of plants with treatments in place that can achieve *Cryptosporidium* reduction credit for LT2ESWTR beyond conventional treatment. It is possible that some plants could have multiple technologies for which they could receive credit. To determine the percent of plants that might achieve multiple credits, the chances of a plant having each of the three technologies—combined filter performance, multiple sedimentation basins, and multiple filters—were considered independently. Therefore, the chance of a small plant having lower finished water turbidity to meet the combined filtration performance requirement and multiple sedimentation basins is:

$$(0.34)*(0.03) = 1.0\%.$$

Exhibit A.7 present the estimates of the percentages of plants that would receive 0.5 or 1.0 log of *Cryptosporidium* removal credit for existing technologies.

Exhibit A.7: Total Percentage of Plants with 0.5 and 1.0 Log Reduction Credits

Size (Population Served)	Combined filter performance	Multiple Settling Basins (Conventional and Softening)	Multiple Filters	0.5 log total credit	1.0 log total credit
	(a)	(b)	(c)	(d) = a + b + c - e	(e) = (a*b)+(a*c)+(b*c)
Small (≤ 10k)	34%	3%	0%	36%	1%
Medium (10k -100k)	46%	5%	4%	51%	4%
Large (> 100k)	46%	5%	7%	52%	6%

Source: Derived from Exhibits A.1-A.6.

Appendix B
Characterizing *Cryptosporidium* Concentration and Methods for Predicting Plant Bin Assignment

B.1 Introduction

This appendix describes the statistics used to characterize *Cryptosporidium* occurrence distributions. It then explains how the monitoring frequency and calculation of the average concentration for bin determination were chosen. Lastly, it presents the data used to determine *Cryptosporidium* occurrence and the likelihood of a plant being categorized into a given bin for each regulatory alternative.

B.2 Appropriate Statistical Measure to Characterize Source Waters

EPA considered a variety of statistical measures by which *Cryptosporidium* concentrations in systems could be characterized for the purpose of determining whether additional treatment should be prescribed. These measures included the arithmetic mean, median, 90th percentile, and maximum. Consistent with Microbial-Disinfection Byproduct Advisory Committee (Advisory Committee) recommendations, EPA is proposing that *Cryptosporidium* levels be characterized by the arithmetic mean. Use of the mean is advantageous for several reasons. The mean can be estimated more reliably than other statistical measures. For example, with a limited number of samples, the confidence interval around the mean is substantially narrower (i.e., less uncertain) than for a 90th percentile estimate. Defining a treatment trigger based upon a maximum value would be much less reliable than basing it on a computation involving multiple values, due to the uncertainty associated with any single sample measurement.

The mean concentration also directly relates to the average risk of the exposed population and, therefore, provides a good measure for indicating relative risks from one site versus another (e.g., doubling the source water average concentration corresponds to about a doubling of the risk, assuming the same level of treatment at both sites). In contrast, the median would not be an informative or appropriate characterization because of the large numbers of non-detection measurements expected to occur, resulting in a large number of sites with median values equal to zero. The median would fail to distinguish differences between sites that had half or more of their measurements as zero and positive values for the remainder, and those that truly had measurements of zero.

B.3 Rates of System Misclassification

Having identified an expected level of laboratory analytical method performance based on results with EPA Methods 1622/23 in the Information Collection Rule Supplemental Surveys (ICRSS), and having established the mean as the appropriate statistical measure to classify source water *Cryptosporidium* levels, a critical issue for the Advisory Committee was how accurately systems could be classified within a bin structure by a monitoring program. This analysis illustrates the impact of the number of samples analyzed and the averaging technique (e.g., maximum running average vs. simple mean) on system misclassification rates.

With perfect information on mean source water *Cryptosporidium* levels, it would be possible to assign systems to bins without error. No such perfect information exists, so the Advisory Committee recommended a sampling and testing strategy relying on Method 1622 or 1623. Each source water would require a number of samples to ensure a reasonably accurate estimate of its mean *Cryptosporidium* concentration.

The calculated mean that systems derive from monitoring results will differ from the true mean because of sampling and measurement error. Sampling error occurs because only a finite volume of water is assayed on each occasion. Since oocysts are highly dispersed in the water, many 10-L samples will contain zero oocysts when the concentration is low but greater than zero. For example, EPA would expect most 10-L samples to contain zero oocysts when the true concentration in the water body being sampled is 0.05 oocysts/L.

Sampling error also occurs because samples are collected relatively infrequently. Since *Cryptosporidium* concentrations may experience significant temporal variation, infrequent sampling is likely to miss rare peaks in concentration and, therefore, underestimate the true mean occurrence level. Conversely, if a sample event happens to coincide with a rare occurrence peak, the calculated mean will overestimate the true mean occurrence level. By prescribing a larger number of samples at equal intervals over a long period of time, this type of sampling error can be reduced to a relatively low level.

Measurement error occurs because the total oocyst count from a volume assayed does not usually equal the total number of oocysts that were present. Studies of recovery indicate that the percentage of oocysts lost during the measurement process is variable, most often falling between 15 percent and 65 percent (based on ICRSS data). Because the Advisory Committee recommended that systems be assigned to bins based on total oocyst counts uncorrected for recovery, EPA does not treat average recovery as a source of error. However, the variability of recovery around the mean contributes to error.

To estimate how these errors would affect the assignment of systems to bins, EPA constructed a Monte Carlo model that dealt with the error components in the following manner:

- Finite volume assayed—The model defines the number of oocysts present in a 10-L volume as a Poisson random variable, whose mean is the product of measurement recovery, volume assayed, and concentration at the time of sampling.

- Finite number of samples—True concentration varies over time as a random variable. Concentration is modeled to vary in such a way that its natural logarithm is normally distributed with standard deviation 1.762. This value was selected based on Bayesian analysis of survey data (see Chapter 4) and on expert opinion that at any given site the *Cryptosporidium* concentration would vary within a three order of magnitude concentration range 95 percent of the time; i.e., 2.5 percent of the time the concentration would be less than X, and 2.5 percent of the time the concentration would exceed 1000X.

- Variable recovery—Based on laboratory performance in ICRSS, EPA assumed for the model an average recovery among all laboratories of 40 percent with a relative standard deviation of 50 percent. Recovery is modeled as a Beta random variable with parameters $(\alpha, \beta) = (2,3)$. Mean recovery is therefore $\alpha/(\alpha + \beta) = 2/(2 + 3) = 0.4$. The standard deviation of recovery is 0.2, which is half the mean recovery.

With this Monte Carlo model, source water monitoring using Methods 1622 and 1623 was simulated to predict error rates in assigning systems to the bins under Rule Option A3, the Preferred Alternative. Estimates were made for different monitoring frequencies and decision rules. Monitoring frequencies included 6, 12, 18, 24, 36, and 48 samples collected over a 2-year period. System bin assignments were based on comparing a sample statistic with the selected bin boundaries. Sample statistics included the mean, maximum, 2nd highest, 3rd highest, and maximum running annual average (Max-RAA). (Results are shown only for the 48-sample mean and the 24-sample Max-RAA, the sampling frequencies allowed in the proposed Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR).)

Exhibits B.1 and B.2 show how the probabilities of assignment to Bins 1 through 4 vary with the true source water mean concentration when the Max-RAA is used with 24 samples assayed over a 2-year period (producing 13 annual averages). Table results are based on 1,000 simulated monitoring data sets. Note that because monitoring results will not be corrected for recovery, the parameter to be considered when assessing error in bin assignment is the true mean source water concentration multiplied by 40 percent (the estimated average method recovery). For example, Exhibit B.1 indicates that if the true mean is 0.316 oocysts/L, and the true mean multiplied by 40 percent recovery is 0.126 (0.316 × 0.4), there is a 12.9 percent probability of this water being classified in the no-action bin, an 85.9 percent probability of being classified in Bin 2 (the correct bin for this water), and about a 1 percent probability of being classified in Bin 3.

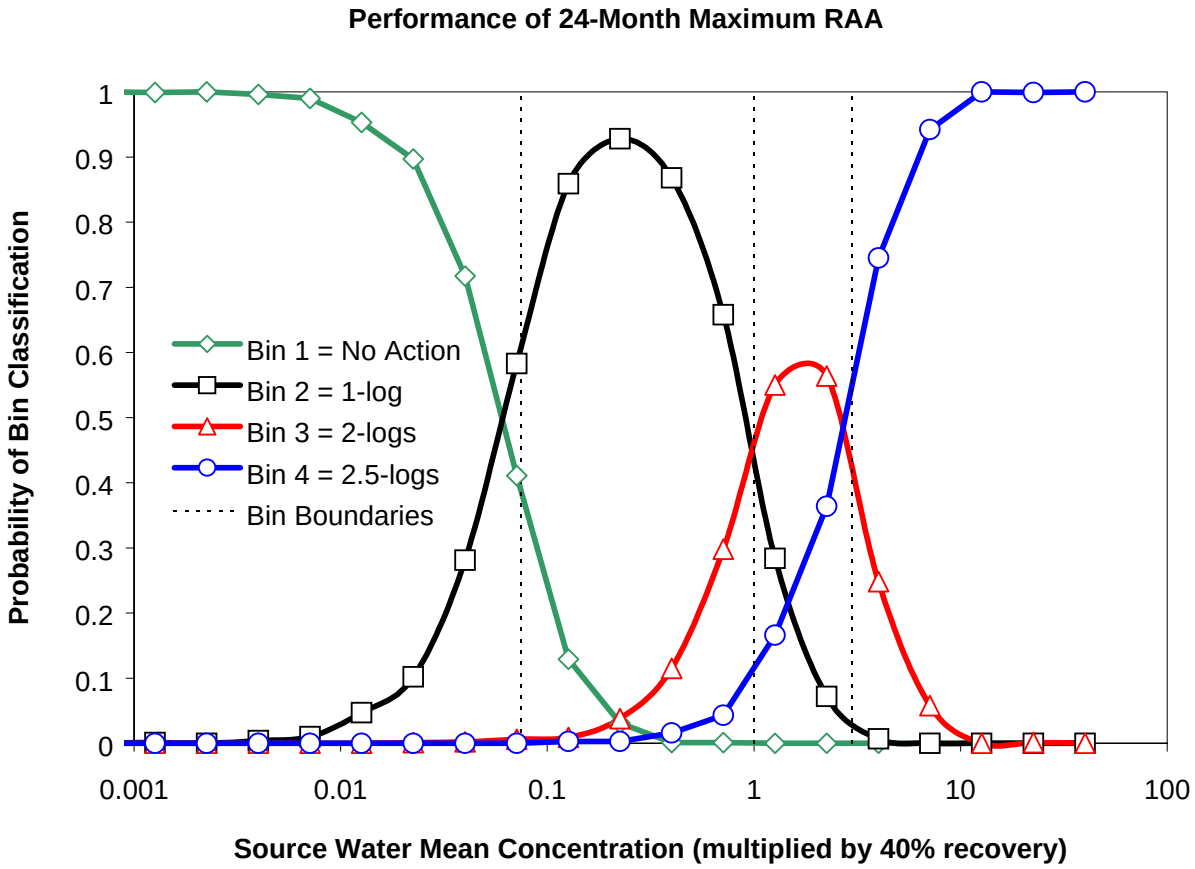
Assignment errors are most likely when the true mean is close to a bin boundary. For example, Exhibit B.1 indicates that a water with a true mean (multiplied by 40 percent recovery) of 0.075 oocysts/L has about a 60 percent probability of being classified in Bin 2 and a 40 percent probability for Bin 1. Notice that classification high is more likely than classification low for these cases. This is because the Max-RAA tends to overestimate the true mean slightly. In contrast, if the true mean concentration is in the middle of Bin 2, then there is about a 90 percent probability of being classified in Bin 2.

Exhibit B.1: Estimated Probability of System Being Assigned to Each of the Four LT2ESWTR Bins as a Function of True Mean Source Water *Cryptosporidium* Concentration Based on Max-RAA

True System Mean (Total Oocysts/L)	Measured Mean at 40% Recovery (Oocysts/L)	Action Bins			
		No Action C < 0.075	1-Log 0.075 ≤ C < 1	2-Log 1 ≤ C < 3	2.5-Log 3 ≤ C
A	B	C	D	E	F
0.0010	0.0004	1.0000	0.0000	0.0000	0.0000
0.0018	0.0007	1.0000	0.0000	0.0000	0.0000
0.0032	0.0013	0.9990	0.0010	0.0000	0.0000
0.0056	0.0022	1.0000	0.0000	0.0000	0.0000
0.0100	0.0040	0.9960	0.0040	0.0000	0.0000
0.0178	0.0071	0.9900	0.0100	0.0000	0.0000
0.0316	0.0126	0.9530	0.0470	0.0000	0.0000
0.0562	0.0225	0.8970	0.1020	0.0010	0.0000
0.1000	0.0400	0.7170	0.2810	0.0020	0.0000
0.1778	0.0711	0.4110	0.5830	0.0060	0.0000
0.3162	0.1265	0.1290	0.8590	0.0090	0.0030
0.5623	0.2249	0.0310	0.9280	0.0380	0.0030
1.0000	0.4000	0.0010	0.8680	0.1150	0.0160
1.7783	0.7113	0.0010	0.6580	0.2980	0.0430
3.1623	1.2649	0.0000	0.2840	0.5500	0.1660
5.6234	2.2494	0.0000	0.0720	0.5640	0.3640
10.0000	4.0000	0.0000	0.0070	0.2480	0.7450
17.7828	7.1131	0.0000	0.0000	0.0580	0.9420
31.6228	12.6491	0.0000	0.0000	0.0000	1.0000
56.2341	22.4936	0.0000	0.0000	0.0010	0.9990
100.0000	40.0000	0.0000	0.0000	0.0000	1.0000

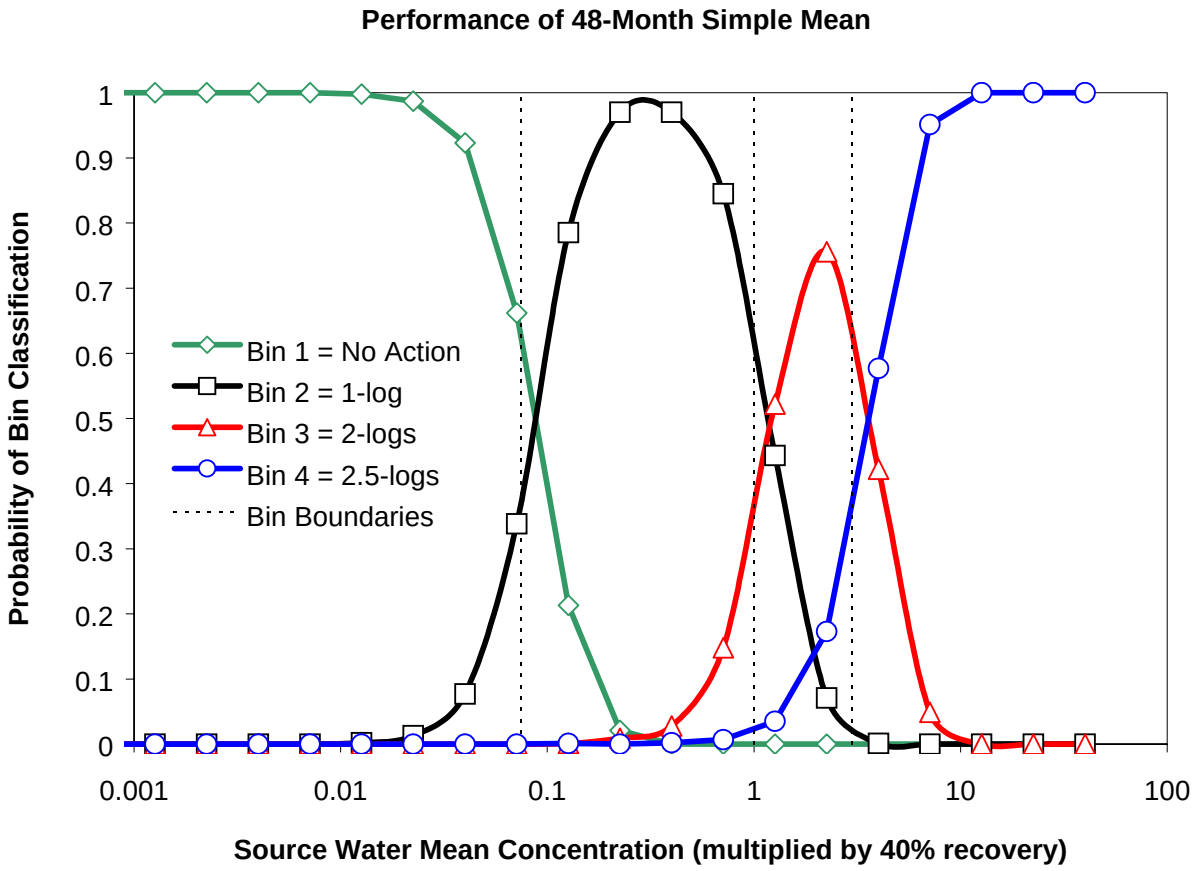
Exhibit B.3 shows equivalent information for a simple mean based on 48 samples over a 2-year period. Again, assignment errors are most likely when the true mean is close to a bin boundary. Notice that the likelihood of a source water being misclassified high is lower than for the Max-RAA based on 24 samples. For example, Exhibit B.3 indicates that if the true mean is 0.075 oocysts/L then there is about a 65 percent probability of being classified in Bin 1 and about a 35 percent probability of being classified in Bin 2. If, however, the true mean is in the middle of Bin 2, then there is a greater than 95 percent probability of being classified in Bin 2.

Exhibit B.2: Likelihood of Classification in Bins 1-4 as a Function of Source Water Mean Concentration Based on a Max-RAA with 24 Samples



Bin assignment error based on the Max-RAA or a simple mean increased substantially when sampling frequency dropped below 24 samples (results not shown). Therefore, the Advisory Committee recommended that at least 24 samples be used for estimating mean source water concentrations and bin determination.

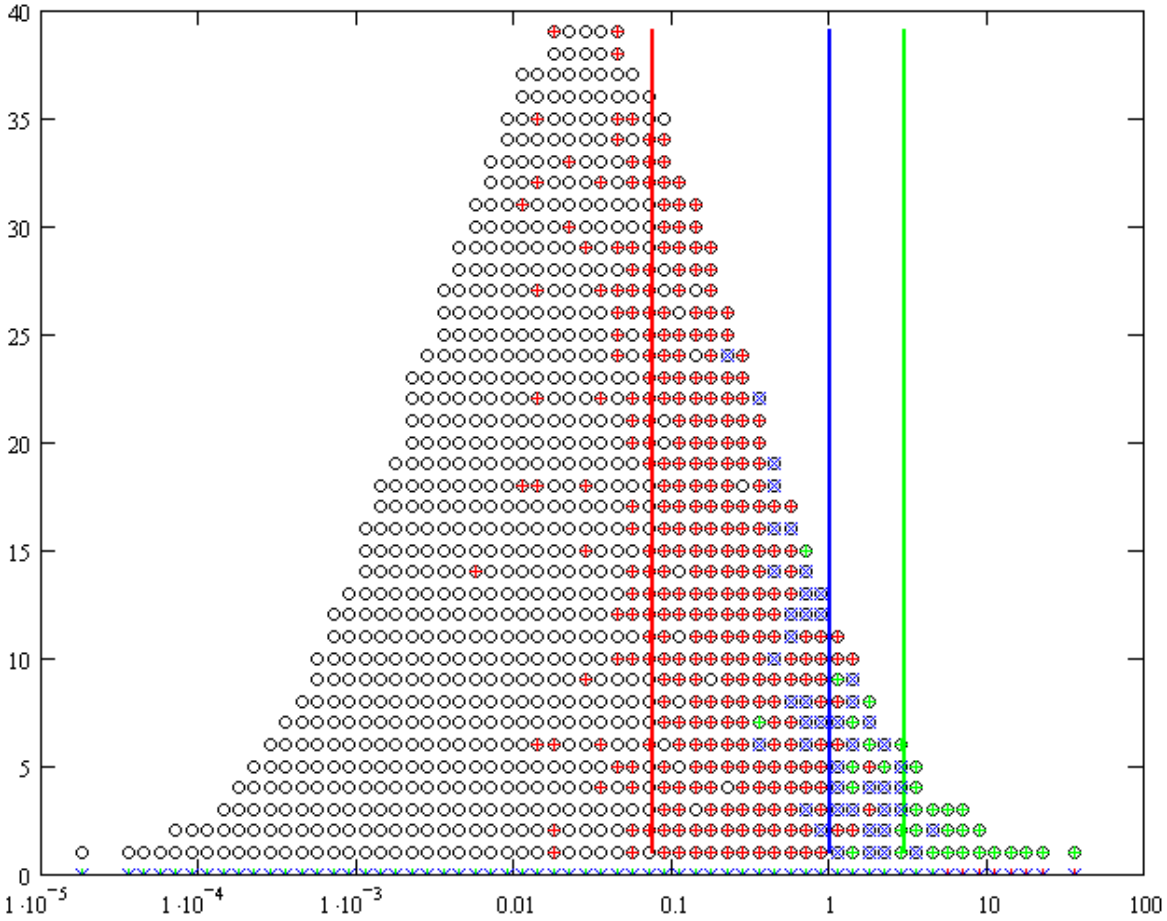
Exhibit B.3: Likelihood of Classification in Bins 1-4 as a Function of Source Water Mean Concentration Based on a Simple Mean with 48 Samples



One way the Advisory Committee members evaluated the significance of system misclassification in bin assignments was to consider a water where the true mean is 0.5 log (i.e., factor of 3.16) from a bin boundary. This case was assessed when the true mean was both a half log below and above a bin boundary. Misclassifying such a water in a lower bin would suggest that the monitoring was not protective of public health, since the relatively high occurrence level would go unaddressed. Both the Max-RAA based on 24 samples and the simple mean based on 48 samples, each over a 2-year monitoring period, provided approximately the same level of protection against this kind of error. For example, for a water with a true mean at 0.5 log above the boundary between Bin 1 and Bin 2 (0.075 oocysts/L), the rates of misclassification into the lowest bin for the 24-sample Max-RAA and the 48-sample simple mean are 1.7 percent (0.017) and 1.4 percent (0.014), respectively.

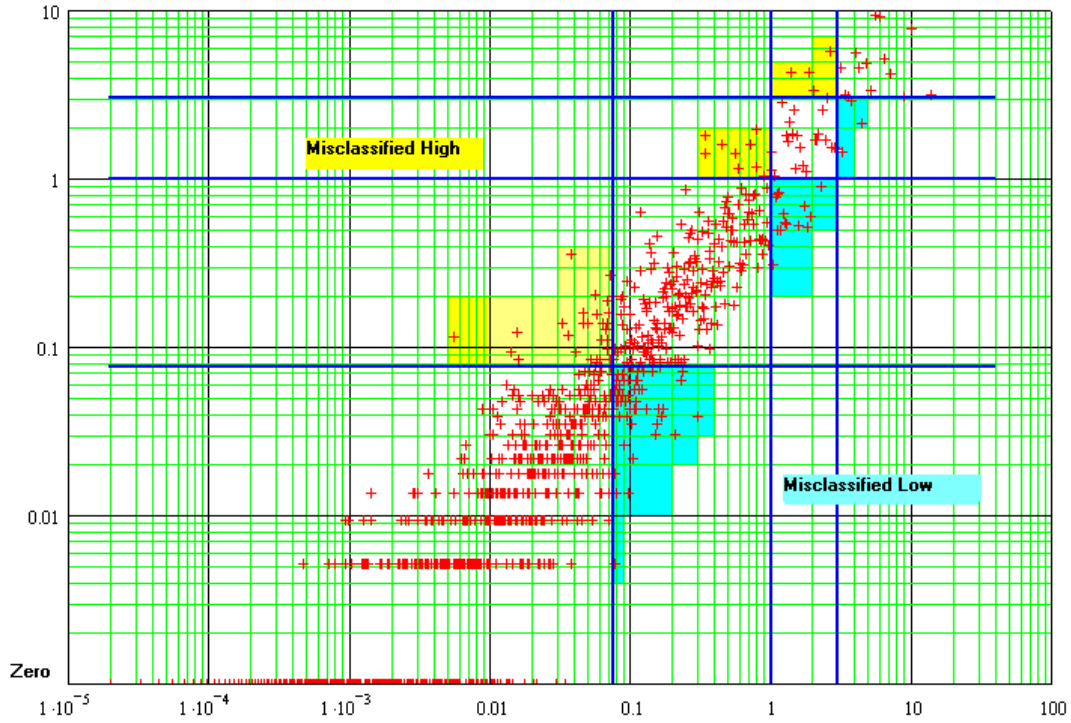
Two graphs are provided that clearly show the tendency for misclassification under the Preferred Alternative. Exhibit B.4 shows the distribution of source waters according to actual concentration and bin classification. Exhibit B.5 shows the measured concentration (on the vertical axis) versus estimated "true" concentration (on the horizontal axis) and the resulting misclassified areas.

Exhibit B.4: Distribution of *Cryptosporidium* Occurrence for Plants and Classification to Regulatory Bins



Note: Plot of distribution of source waters by "true" concentration. The three lines are the bin boundaries for the Preferred Alternative. Empty circles are assigned to the no-action bin. Circles with a dark + in the center are assigned to the 1.0 log removal bin. Circles with an "x" in the center are assigned to the 2.0 log removal bin. Circles with a light + in the center are assigned to the 2.5 log removal bin. Circles with symbols that lie outside their given bin boundary are systems that are misclassified. For example, any circle with a + in it to the left of the leftmost line is one assigned to the 1.0 log removal bin despite having "true" *Cryptosporidium* concentrations below the bin level.

Exhibit B.5: Measured Cryptosporidium Concentration versus "True" Concentration and Bin Misclassification



Note: Measured concentration versus "true" concentration. Dark lines represent the bin boundaries for the Preferred Alternative. Light grey shading shows areas that have samples that were classified in a bin higher than their "true" concentration. Darker grey shaded areas show areas with samples that were classified in a bin lower than their "true" concentration. Based on 24-month mean for ICR 95th percentile occurrence distribution.

Misclassifying waters too high relative to the true mean would potentially result in systems taking costly and unnecessary steps to reduce exposure. As shown by Exhibits B.2 and B.3, the 48-sample simple mean provides greater protection against this type of error than does the Max-RAA, although monitoring costs will be twice as high. Given the concerns for bias (high or low) in assigning systems to bins, the Advisory Committee recommended that either the Max-RAA or the 48-sample simple mean be used to provide sufficiently reliable estimates for bin determination under LT2ESWTR.

B.4 Predicted Bin Assignment for Each Regulatory Alternative

This section presents the probability distributions generated from the same model described above. The distributions show the likelihood of a plant with a source water of a given true value being classified in a given bin for each regulatory alternative. The following exhibits present the results:

B.6 Bin Assignment Probability for Alternative A2 (0.5 log/1.5 log/2.5 log)
B.7 Graph of Bin Assignment Probability for Alternative A2 (0.5 log/1.5 log/2.5 log)
B.8 Bin Assignment Probability for Alternative A3 (1.0 log/2.0 log/2.5 log)
B.9 Graph of Bin Assignment Probability for Alternative A3 (1.0 log/2.0 log/2.5 log)
B.10 Bin Assignment Probability for Alternative A4 (0.5 log/1.0 log)
B.11 Graph of Bin Assignment Probability for Alternative A4 (0.5 log/1.0 log)

The measured amount of *Cryptosporidium* may be different than the actual or "true" concentration because of sampling errors and method limitations. Exhibits B.6, B.8, and B.10 show for a given "true" concentration the percentage of time that a sample would be classified in each bin. (This section differs from section B.3, which factors in recovery in determining probability of misclassification). The Bin Assignment central tendency is presented for all three occurrence data sets (the Information Collection Rule (ICR), ICR Supplemental Survey Large Systems (ICRSSL), and ICR Supplemental Survey Medium Systems (ICRSSM)). The percentage of plants classified in each bin depends on method errors such as recovery, false positives, and analyst error, as well as accounting for sample size and the fact that the concentration in a given sample may under- or over-represent the concentration in the larger water body. Exhibits B.7, B.9, and B.11 show the probability of classification in a bin given a "true" source water concentration in graphical form.

Exhibit B.6: Bin Assignment Probability Given True and Measured Maximum Alternative A2 (0.5 log/1.5 log/2.5 log)

System Concentration		Binning Probability [2]			
True Mean Concentration [1]	Measured Mean Concentration (40% Recovery)	Bin 1 No Action C < 0.03	Bin 2 0.5-log 0.03 ≤ C < 0.1	Bin 3 1.5-logs 0.1 ≤ C < 1.0	Bin 4 2.5-logs 1.0 ≤ C
A	B	C	D	E	F
0.0025	0.0010	0.9980	0.0020	0.0000	0.0000
0.0040	0.0016	0.9930	0.0070	0.0000	0.0000
0.0045	0.0018	0.9910	0.0090	0.0000	0.0000
0.0050	0.0020	0.9900	0.0100	0.0000	0.0000
0.0056	0.0022	0.9900	0.0100	0.0000	0.0000
0.0100	0.0040	0.9620	0.0370	0.0010	0.0000
0.0180	0.0072	0.8980	0.0930	0.0090	0.0000
0.0320	0.0128	0.7590	0.2210	0.0200	0.0000
0.0560	0.0224	0.5140	0.4270	0.0590	0.0000
0.1000	0.0400	0.2510	0.5730	0.1760	0.0000
0.1780	0.0712	0.0630	0.5190	0.4140	0.0040
0.3160	0.1264	0.0080	0.2590	0.7160	0.0170
0.5620	0.2248	0.0000	0.0640	0.8900	0.0460
1.0000	0.4000	0.0000	0.0040	0.8590	0.1370
1.7780	0.7112	0.0000	0.0000	0.6320	0.3680
3.1620	1.2648	0.0000	0.0000	0.2850	0.7150
5.6230	2.2492	0.0000	0.0000	0.0640	0.9360
10.0000	4.0000	0.0000	0.0000	0.0020	0.9980
17.7830	7.1132	0.0000	0.0000	0.0000	1.0000
31.6230	12.6492	0.0000	0.0000	0.0000	1.0000
56.2340	22.4936	0.0000	0.0000	0.0000	1.0000
100.0000	40.0000	0.0000	0.0000	0.0000	1.0000
177.8280	71.1312	0.0000	0.0000	0.0000	1.0000
	Binning Central Tendency [3]				
	All Plants ICR Occurrence Distribution	52.20%	17.80%	22.67%	7.35%
	All Plants, ICRSSL	55.30%	28.40%	15.90%	0.50%
	All Plants, ICRSSM	53.20%	25.20%	19.99%	1.63%

[1] True source water *Cryptosporidium* concentration (oocysts/liter).
[2] Probability that a plant will fall into a given treatment bin given true and measured concentration taking into account measurement errors and the *Cryptosporidium* occurrence.
[3] Result of 1,000 Monte Carlo Simulations 06/05/01.

Exhibit B.7: Bin Assignment Probability for Alternative A2 - (Maximum Reduction)

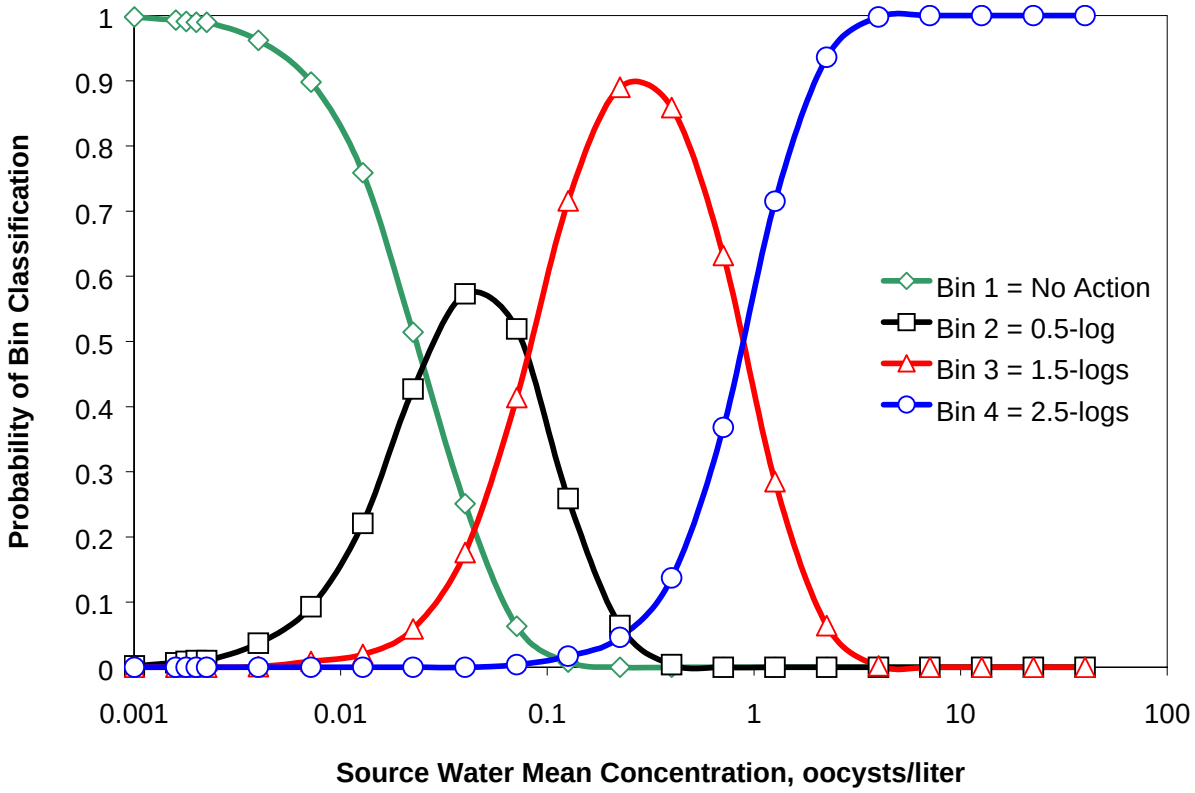


Exhibit B.8: Bin Assignment Probability Given True and Measured Maximum Alternative A3 (Preferred Alternative)

System Concentration		Binning Probability [2]			
True Mean Concentration [1]	Measured Mean Concentration (40% Recovery)	Bin 1 No Action C < 0.075	Bin 2 1-log 0.075 ≤C< 0.1	Bin 3 2-logs 1 ≤ C < 3	Bin 4 2.5-logs 3 ≤ C
A	B	C	D	E	F
0.0032	0.0013	1.0000	0.0000	0.0000	0.0000
0.0056	0.0022	0.9990	0.0010	0.0000	0.0000
0.0100	0.0040	0.9990	0.0010	0.0000	0.0000
0.0180	0.0072	0.9950	0.0050	0.0000	0.0000
0.0320	0.0128	0.9720	0.0280	0.0000	0.0000
0.0560	0.0224	0.9140	0.0860	0.0000	0.0000
0.1000	0.0400	0.7470	0.2530	0.0000	0.0000
0.1780	0.0712	0.4490	0.5510	0.0000	0.0000
0.3160	0.1264	0.1590	0.8270	0.0130	0.0010
0.5620	0.2248	0.0230	0.9470	0.0280	0.0020
1.0000	0.4000	0.0020	0.8530	0.1310	0.0140
1.7780	0.7112	0.0000	0.6290	0.3200	0.0510
3.1620	1.2648	0.0000	0.2780	0.5780	0.1440
5.6230	2.2492	0.0000	0.0660	0.5570	0.3770
10.0000	4.0000	0.0000	0.0030	0.2560	0.7410
17.7830	7.1132	0.0000	0.0000	0.0520	0.9480
31.6230	12.6492	0.0000	0.0000	0.0030	0.9970
56.2340	22.4936	0.0000	0.0000	0.0000	1.0000
100.0000	40.0000	0.0000	0.0000	0.0000	1.0000
	Binning Central Tendency [3]				
	All Plants ICR Occurrence Distribution	65.40%	27.20%	4.37%	3.19%
	All Plants, ICRSSL	77.70%	21.80%	0.50%	0.06%
	All Plants, ICRSSM	72.90%	25.40%	1.39%	0.36%

[1] True source water *Cryptosporidium* concentration (oocysts/liter).

[2] Probability that a plant will fall into a given treatment bin given true and measured concentration taking into account measurement errors and the *Cryptosporidium* occurrence.

[3] Result of 1,000 Monte Carlo Simulations 06/05/01.

Exhibit B.9: Alternative A3 - (Preferred Alternative)

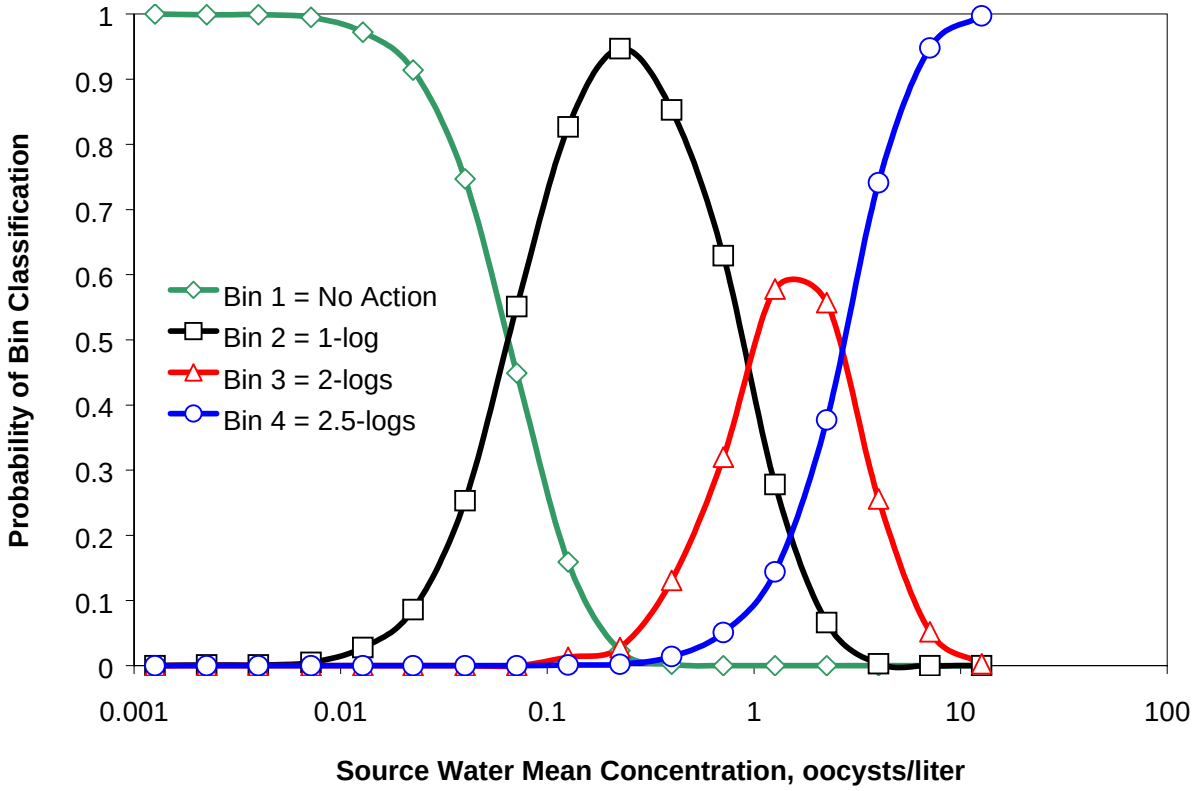


Exhibit B.10: Bin Assignment Probability Given True and Measured Maximum Alternative A4 (0.5 log/1.0 log)

System Concentration		Binning Probability [2]			
True Mean Concentration [1]	Measured Mean Concentration (40% Recovery)	Bin 1 No Action C < 0.1	Bin 2 0.5-log 0.1 ≤ C < 1	Bin 3 1-log 1 ≤ C	(No Bin 4)
A	B	C	D	E	F
0.00178	0.0007	1.0000	0.0000	0.0000	
0.00316	0.0013	1.0000	0.0000	0.0000	
0.00562	0.0022	1.0000	0.0000	0.0000	
0.01000	0.0040	1.0000	0.0000	0.0000	
0.01800	0.0072	0.9990	0.0010	0.0000	
0.03200	0.0128	0.9930	0.0070	0.0000	
0.05600	0.0224	0.9550	0.0450	0.0000	
0.10000	0.0400	0.8410	0.1580	0.0010	
0.17800	0.0712	0.6070	0.3900	0.0030	
0.31600	0.1264	0.2830	0.7030	0.0140	
0.56200	0.2248	0.0870	0.8740	0.0390	
1.00000	0.4000	0.0050	0.8700	0.1250	
1.77800	0.7112	0.0000	0.6540	0.3460	
3.16200	1.2648	0.0000	0.2940	0.7060	
5.62300	2.2492	0.0000	0.0690	0.9300	
10.00000	4.0000	0.0000	0.0030	0.9970	
17.78300	7.1132	0.0000	0.0000	1.0000	
31.62300	12.6492	0.0000	0.0000	1.0000	
56.23400	22.4936	0.0000	0.0000	1.0000	

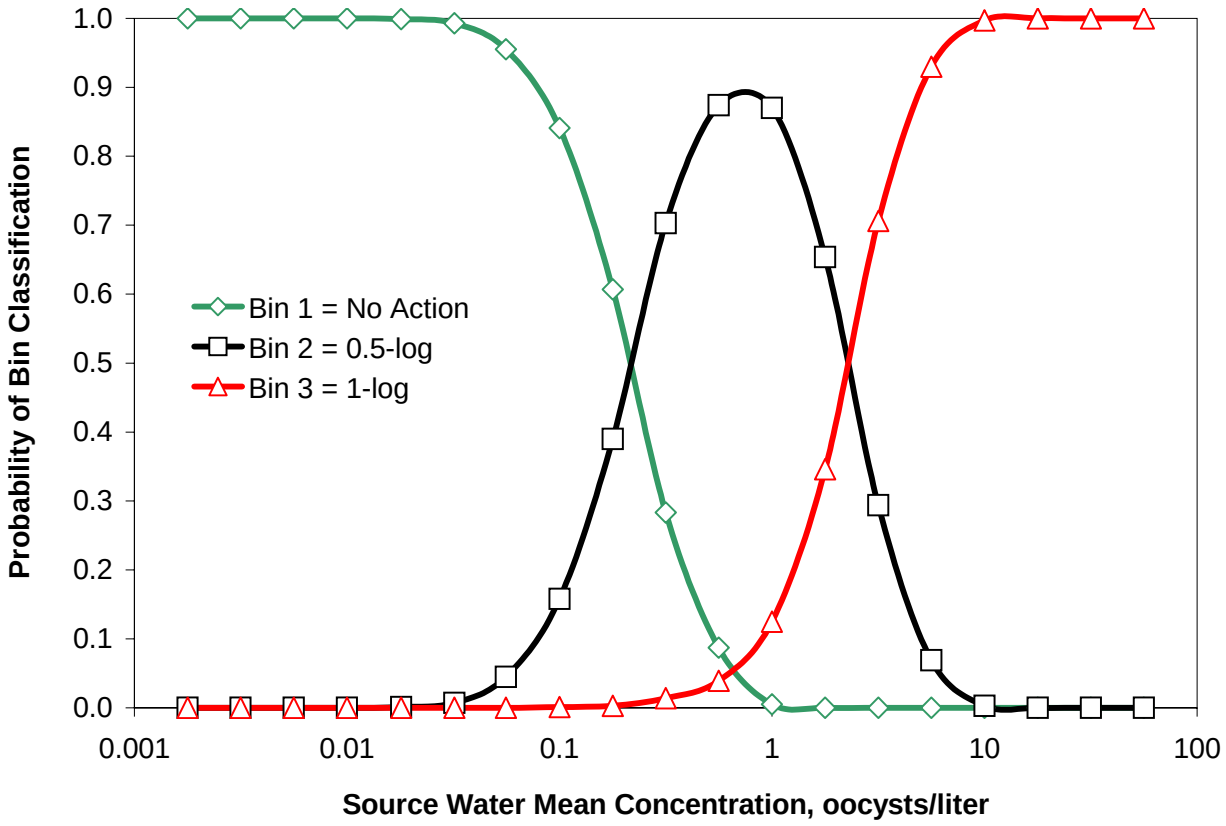
	Binning Central Tendency [3]			
All Plants ICR Occurrence Distribution	69.60%	22.80%	7.50%	N/A
All Plants, ICRSSL	84.00%	15.60%	0.40%	N/A
All Plants, ICRSSM	78.50%	19.70%	1.80%	N/A

[1] True source water *Cryptosporidium* concentration (oocysts/liter).

[2] Probability that a plant will fall into a given treatment bin given true and measured concentration taking into account measurement errors and the *Cryptosporidium* occurrence.

[3] Result of 1,000 Monte Carlo Simulations 06/05/01.

Exhibit B.11: Bin Assignment Probability for Alternative A4 - (Least Reduction)



In order to bound the range of *Cryptosporidium* occurrence, 90 percent confidence limits were developed for *Cryptosporidium* occurrence. From the 1,000 mu-sigma pairs of occurrence, the analysis used the 5th and 95th percentile concentrations (i.e., 1,000 5th percentile plant-means and 1,000 95th percentile plant-means) and ran a Monte Carlo simulation to generate 24 RAAs for each plant. The bin assignment percentage was calculated from the number of plants within the occurrence bins based on the highest RAA. Exhibit B.12 shows the bin assignment for high (95th percentile) and low (5th percentile) occurrence distributions by regulatory alternative (except A1, which has no bin assignment).

Exhibit B.12: Bin Assignment for the *Cryptosporidium* Occurrence Confidence Bound Distributions (5th and 95th Percentiles)

Rule Option	Source Water	Log 0.5 Removal	Log 1.0 Removal	Log 1.5 Removal	Log 2.0 Removal	Log 2.5 Removal
A2	ICR_Low	18.2%		22.2%		5.8%
	ICR_High	20.7%		25.3%		8.6%
	ICRSSL_Low	26.4%		12.2%		0.2%
	ICRSSL_High	31.0%		18.3%		0.9%
	ICRSSM_Low	23.3%		17.8%		1.1%
	ICRSSM_High	27.1%		21.5%		2.4%
A3	ICR_Low		26.5%		3.7%	2.1%
	ICR_High		30.4%		4.8%	3.8%
	ICRSSL_Low		17.5%		0.2%	0.0%
	ICRSSL_High		24.7%		0.8%	0.1%
	ICRSSM_Low		22.9%		0.9%	0.2%
	ICRSSM_High		27.5%		1.9%	0.6%
A4	ICR_Low	22.2%	5.8%			
	ICR_High	25.3%	8.6%			
	ICRSSL_Low	12.2%	0.2%			
	ICRSSL_High	18.3%	0.9%			
	ICRSSM_Low	17.8%	1.1%			
	ICRSSM_High	21.5%	2.4%			

B.5 Bin Assignment for Unfiltered Plants

Bin assignment for unfiltered plants was calculated the same way as for filtered plants, described above. The only difference is that the unfiltered plants have only two treatment bins, one requiring 2.0 log inactivation and another requiring 3.0 log inactivation. Analysis was conducted for all unfiltered systems using the ICR unfiltered data set. The results of the bin assignment analysis are included in Exhibit B.13 for small, medium, and large systems.

Exhibit B.13: Bin Assignment for the *Cryptosporidium* Occurrence Distribution for Unfiltered Plants

Size Category (Population Served)	2.0 Log Inactivation Bin	3.0 Log Inactivation Bin
Small (≤ 10,000)	79.2%	20.8%
Medium (10,001 - 100,000)	79.2%	20.8%
Large (> 100,000)	81.2%	18.8%

Appendix C
Benefits

C.1 Summary

This appendix presents additional data on the risk and benefit estimates for the LT2ESWTR, supplementing or providing background for the calculations in Chapter 5. The Appendix is organized as follows:

The Appendix C exhibit list is below. For Exhibits C.4 through C.9, each exhibit has two parts—the first based on the enhanced cost of illness and the second based on the traditional cost of illness.

C.2 AIDS/Population Ratio for Milwaukee Outbreak

The national mortality rate for Acquired Immune Deficiency Syndrome (AIDS) patients due to cryptosporidiosis cannot be directly derived from the data collected during the Milwaukee outbreak, but these data can be adjusted to more accurately estimate mortality rates in 2001. One adjustment is needed because there are considerably fewer AIDS patients per capita in Milwaukee and the State of Wisconsin than in the rest of the country. As an illustration, in 1993 there were about three times the number of persons living with AIDS per capita in the United States compared to Wisconsin. The population living with AIDS in 1993 was 132,686 (CDC 1993) in a total population of 257,783,000 (U.S. Census Bureau, 2001c) compared to Wisconsin's 862 persons living with AIDS (CDC 1993) in a total population of 5,044,318 (U.S. Census Bureau, 2001c). A second adjustment is necessary to reflect the increased incidence of AIDS in the United States between 1993 and 2001. A further adjustment was needed to reflect the different incident rates in areas served by filtered and unfiltered systems. For all these adjustments, the analysis uses data on the incidence of AIDS from the CDC and the U.S. Census Bureau. Using these two sources allows more consistent comparisons across geographic areas and time than do the available alternatives..

Other sources were not used that provide related data. For example, Frisby et al. (1997) mention that approximately 1,300 people were living HIV in Milwaukee in 1993, but not all HIV patients are immunocompromised to the same degree as AIDS patients and, therefore, do not have the same risk of illness and death. Dr. Neil Hoxie, of the Bureau of Public Health in Wisconsin, in personal communications estimated that 1,203 people were probably living with AIDS in the metropolitan statistical area of Milwaukee in 1993, an estimate higher than the CDC estimate for States. Unfortunately, no source reported a count of AIDS patients within the area served by the Milwaukee public water system, or the area corresponding to the 1993 Cryptosporidium outbreak. Using statewide numbers for the number of people living with AIDS would be certain to capture the area of the 1993 outbreak, but would be a likely underestimate of the number of AIDS patients per capita due to rural populations with few AIDS patients being added to the total population. However, an estimate without all AIDS patients in the original outbreak area would also be an overestimate. In the face of this lack of data related specifically to the population affected by the outbreak, and a preference for comparable data for multiple years in several geographic locations, the analysis uses only data from the CDC and the U.S. Census.

C.3Derivation of Filtered and Unfiltered Population Numbers for Mortality

The greater presence of sensitive subpopulations in some areas might indicate a higher rate of mortality due to cryptosporidiosis. A number of large metropolitan areas are served by water systems that are unfiltered and the populations of immunocompromised served by unfiltered systems differs from those served by filtered systems. The analysis in Chapter 5, therefore, calculates mortality rates for filtered and unfiltered systems separately to highlight possible differences in mortality rates due to cryptosporidiosis.

The analysis seeks to compare the percentage of the total U.S. population living with AIDS that live in areas served by unfiltered systems versus filtered systems. The CDC, in its semiannual "*HIV/AIDS Surveillance Report*," gives the number of individuals living with AIDS by metropolitan statistical area. Population data from the metropolitan statistical areas served by unfiltered systems was used instead of the population actually served by the unfiltered systems. The population counts from the 2000 Census were used because they were more accurate than 2001 estimates of population. The former data are used to develop adjustment factors, and so it was judged more accurate to use inputs from

consistent sources, rather than mix in service population data that were self-reported by utilities. Data for the relevant metropolitan areas are shown in Exhibit C.1.

Exhibit C.1: Population Served for Selected Unfiltered Systems and AIDS Population

Unfiltered Systems	2000 Census Population	2001 Number of People Living with AIDS
Portland, ME[1]	243,537	156
Portland, OR	2,265,223	1,868
Tacoma, WA	700,820	457
San Francisco, CA	7,039,362	9,488
New York, NY	21,199,865	50,380
Total	**31,448,807**	**62,349**

Sources: AIDS population information from CDC except Portland, Maine
[1]Portland, Maine AIDS information from City of Portland, Maine.

For the purposes of developing an adjustment factor, the population remaining in the U.S. is considered to be served by filtered systems. The total population within the metropolitan statistical areas of the unfiltered systems was subtracted from the total U.S. population in 2000 to give an "adjusted" population for filtered systems, and the AIDS population of unfiltered systems was also subtracted from the national estimates of people living with AIDS. From these numbers, the percentage of AIDS patients in unfiltered and filtered systems can be determined (Exhibit C.2). The use of overall U.S. Census data is appropriate because the incidence rate is therefore derived from the number of persons living with AIDS and the population of which they are a part. It would be inappropriate to derive a factor based on the population served by public water systems because there are no comparable estimates for the number of people living with AIDS in that population.

Exhibit C.2: Derivation of Filtered Systems' Populations

Filtered Systems	2000 Census Population	2001 Number of People Living with AIDS
US Population	281,421,906	362,261
Unfiltered Population	31,448,807	62,349
Adjusted Filtered Population	**249,973,099**	**299,912**

In order to derive a factor to adjust the 1993 Milwaukee AIDS mortality rate for changes in time and population for filtered systems, the total adjusted number of people living with AIDS at the end of 2001 in the entire country is divided by the adjusted 2000 national population. This percentage is divided

by the AIDS/Population ratio of Wisconsin in 1993, yielding a population and time adjustment factor. The adjustment factor for unfiltered systems uses only the populations served by unfiltered systems in 2000 (AIDS and non-AIDS), divided by the 1993 Wisconsin AIDS/Population ratio.

C.4 Model-Estimated National Cases of Illness and Death Avoided With Associated Economic Values

Exhibits C.3 through C.11 summarize the risk assessment modeling. Exhibit C.3 presents the baseline populations at risk and pre-LT2ESWTR cases of illness and death. Exhibit C.4 through C.9 present expected cases avoided and monetized benefits for all regulatory alternatives. Exhibits C.10 and C.11 present graphs of illnesses and deaths avoided per year, respectively.

Exhibit C.3: Population at Risk and Baseline Pre-LT2 Cases of Illness and Death by System Size, Filtration, and Data Set

Data Set	Filtration	Population at Risk	Pre-LT2 Annual Illnesses			Pre-LT2 Annual Deaths		
			Mean	90% Confidence Bound		Mean	90% Confidence Bound	
				Lower (5th %ile)	Upper (95th %ile)		Lower (5th %ile)	Upper (95th %ile)
		A	B	C	D	E	F	G
All System Sizes								
ICR	Filtered	181,456,672	491,091	46,523	1,404,589	81	8	232
	Unfiltered	10,384,145	501,706	101,303	986,331	131	26	257
ICRSSL	Filtered		147,185	15,445	426,739	24	3	71
	Unfiltered		146,449	29,583	287,769	38	8	75
ICRSSM	Filtered		257,985	24,193	802,927	43	4	133
	Unfiltered		257,342	51,984	505,670	67	14	132
Small Systems (< 10,000)								
ICR	Filtered	9,546,424	51,350	5,354	141,101	8	1	23
	Unfiltered	138,740	5,492	1,117	11,102	1	0	3
ICRSSL	Filtered		16,432	1,566	47,187	3	0	8
	Unfiltered		1,766	359	3,570	0	0	1
ICRSSM	Filtered		28,481	2,337	88,865	5	0	15
	Unfiltered		3,059	622	6,183	1	0	2
Large Systems (≥ 10,000)								
ICR	Filtered	171,910,248	439,740	40,538	1,262,398	73	7	209
	Unfiltered	10,245,405	496,214	100,081	976,213	129	26	254
ICRSSL	Filtered		130,753	13,653	380,642	22	2	63
	Unfiltered		144,683	29,178	284,606	38	8	74
ICRSSM	Filtered		229,504	21,654	719,042	38	4	119
	Unfiltered		254,284	51,281	500,198	66	13	130

Source: Benefits and Risk Model

Exhibit C.4a
Cases Avoided and Benefits Annualized at 3 Percent (Based on Enhanced Cost of Illness), ICR Data Set

		Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
		Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)
	Size Category	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Alternative A1																
Filtered and Unfiltered	<100	325.12	27.86	1031.82	0.05	0.00	0.17	0.20	0.02	0.64	0.24	0.01	0.86	0.44	0.03	1.43
	100-499	1767.96	176.02	5156.90	0.30	0.03	0.86	1.11	0.11	3.22	1.31	0.06	4.57	2.41	0.20	7.37
	500-999	2196.90	237.03	6094.05	0.37	0.04	1.03	1.37	0.15	3.81	1.64	0.08	5.60	3.02	0.27	9.07
	1,000-3,299	13189.76	1514.30	35442.15	2.28	0.27	6.04	8.24	0.95	22.15	10.03	0.50	33.48	18.28	1.76	54.02
	3,300-9,999	39029.09	4675.44	103357.81	6.87	0.86	17.92	24.39	2.92	64.60	30.30	1.59	99.99	54.69	5.60	159.35
	10,000-49,999	79199.15	9458.58	214320.22	14.18	1.79	37.55	55.59	6.64	150.42	70.68	3.84	235.03	126.27	13.21	368.70
	50,000-99,999	57812.83	7165.92	154332.93	10.57	1.41	27.48	43.24	5.36	115.44	56.42	3.24	186.11	99.66	10.91	286.90
	100,000-999,999	261817.81	32900.33	677892.83	50.15	6.90	125.37	201.91	25.37	522.79	276.67	15.32	903.36	478.58	50.09	1370.71
	1,000,000+	534615.61	94112.54	1159827.15	126.60	23.19	266.17	412.30	72.58	894.46	699.05	46.54	2141.35	1111.34	141.40	2888.28
	All	989954.23	151965.26	2347055.39	211.38	34.84	480.39	748.36	115.32	1770.67	1146.33	71.74	3598.65	1894.69	227.15	5079.45
Alternative A2																
Filtered and Unfiltered	<100	319.39	27.10	1014.73	0.05	0.00	0.17	0.20	0.02	0.63	0.23	0.01	0.85	0.43	0.03	1.40
	100-499	1733.29	171.10	5095.94	0.29	0.03	0.85	1.08	0.11	3.19	1.28	0.06	4.48	2.37	0.20	7.21
	500-999	2140.11	230.21	5933.73	0.36	0.04	1.00	1.34	0.14	3.71	1.60	0.07	5.46	2.94	0.26	8.83
	1,000-3,299	12847.44	1473.04	34566.55	2.22	0.26	5.90	8.03	0.92	21.61	9.79	0.49	32.69	17.82	1.72	52.57
	3,300-9,999	38044.97	4557.49	100971.74	6.71	0.84	17.52	23.78	2.85	63.11	29.59	1.56	97.75	53.37	5.46	154.87
	10,000-49,999	77177.93	9254.65	208185.56	13.84	1.76	36.57	54.17	6.50	146.12	69.02	3.76	229.93	123.19	12.95	360.05
	50,000-99,999	56405.61	7026.79	149991.86	10.34	1.38	26.73	42.19	5.26	112.19	55.18	3.18	181.38	97.37	10.70	279.74
	100,000-999,999	255978.43	32308.03	661218.02	49.19	6.80	122.49	197.41	24.92	509.93	271.37	15.13	885.02	468.78	49.24	1337.23
	1,000,000+	530678.56	93635.29	1150006.60	125.95	23.12	264.43	409.26	72.21	886.89	695.48	46.42	2129.56	1104.74	140.89	2869.26
	All	975325.72	150295.25	2307247.28	208.95	34.59	473.76	737.46	114.09	1740.81	1133.54	71.20	3547.42	1871.00	225.30	4991.54
Alternative A3 - Preferred																
Filtered and Unfiltered	<100	309.47	26.06	981.00	0.05	0.00	0.16	0.19	0.02	0.61	0.23	0.01	0.82	0.42	0.03	1.36
	100-499	1673.63	164.23	4927.86	0.28	0.03	0.82	1.05	0.10	3.08	1.24	0.05	4.35	2.29	0.19	6.96
	500-999	2064.02	222.06	5723.13	0.35	0.04	0.96	1.29	0.14	3.58	1.55	0.07	5.27	2.84	0.26	8.52
	1,000-3,299	12389.02	1425.38	33296.63	2.14	0.26	5.70	7.74	0.89	20.81	9.45	0.47	31.55	17.20	1.67	50.48
	3,300-9,999	36727.33	4420.72	97338.89	6.49	0.82	16.90	22.96	2.76	60.84	28.63	1.52	94.61	51.59	5.30	149.09
	10,000-49,999	75872.19	9141.26	204711.07	13.63	1.73	35.94	53.25	6.42	143.68	67.95	3.71	226.08	121.21	12.72	354.45
	50,000-99,999	55496.55	6925.94	147408.91	10.19	1.37	26.30	41.51	5.18	110.26	54.39	3.15	178.22	95.90	10.57	275.92
	100,000-999,999	251900.25	31918.97	649104.43	48.51	6.73	120.62	194.27	24.62	500.59	267.68	14.95	872.08	461.94	48.69	1314.28
	1,000,000+	527927.57	93327.35	1141902.96	125.49	23.07	263.18	407.14	71.97	880.64	692.99	46.29	2119.95	1100.12	140.49	2856.23
	All	964360.04	149240.82	2277366.81	207.14	34.41	468.44	729.39	113.32	1717.87	1124.10	70.79	3511.27	1853.49	223.83	4940.84
Alternative A4																
Filtered and Unfiltered	<100	270.15	22.93	850.18	0.05	0.00	0.14	0.17	0.01	0.53	0.20	0.01	0.72	0.37	0.03	1.18
	100-499	1445.35	145.37	4187.44	0.24	0.03	0.70	0.90	0.09	2.62	1.07	0.05	3.74	1.98	0.17	5.99
	500-999	1770.08	197.09	4832.42	0.30	0.03	0.82	1.11	0.12	3.02	1.33	0.06	4.49	2.44	0.23	7.21
	1,000-3,299	10634.22	1285.03	28183.78	1.85	0.23	4.84	6.65	0.80	17.62	8.18	0.43	27.07	14.82	1.50	42.73
	3,300-9,999	31698.05	4002.05	82425.38	5.66	0.75	14.42	19.81	2.50	51.52	24.97	1.38	81.67	44.78	4.82	126.78
	10,000-49,999	68037.66	8293.10	181324.07	12.33	1.61	32.00	47.75	5.82	127.26	61.49	3.47	203.52	109.24	11.79	317.41
	50,000-99,999	50043.66	6380.31	130899.24	9.29	1.29	23.55	37.43	4.77	97.91	49.57	2.97	161.86	87.01	9.77	248.10
	100,000-999,999	227342.62	29206.04	573203.86	44.45	6.28	108.03	175.33	22.52	442.06	245.36	14.04	793.50	420.68	45.55	1180.85
	1,000,000+	511258.27	91578.02	1092712.44	122.73	22.79	254.52	394.28	70.63	842.70	677.84	45.60	2060.02	1072.12	138.69	2773.82
	All	902500.06	143230.98	2088992.85	196.90	33.32	437.40	683.43	108.96	1577.67	1070.01	68.83	3323.94	1753.44	215.67	4642.40

Exhibit C.4b
Cases Avoided and Benefits Annualized at 3 Percent (Based on Enhanced Cost of Illness), ICRSSM Data Set

		Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Size Category	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Alternative A1															
Filtered and Unfiltered	<100	153.72	12.68	494.33	0.03	0.00	0.08	0.10	0.01	0.31	0.11	0.00	0.41	0.21	0.01	0.69
	100-499	917.76	80.98	2870.49	0.15	0.01	0.48	0.57	0.05	1.79	0.68	0.03	2.45	1.25	0.09	4.02
	500-999	1184.12	108.55	3641.33	0.20	0.02	0.61	0.74	0.07	2.28	0.88	0.04	3.19	1.62	0.13	5.18
	1,000-3,299	7313.58	720.97	22096.30	1.26	0.13	3.75	4.57	0.45	13.81	5.55	0.25	19.75	10.13	0.86	31.73
	3,300-9,999	21835.44	2267.08	64761.19	3.84	0.43	11.11	13.65	1.42	40.48	16.92	0.80	59.62	30.57	2.77	94.22
	10,000-49,999	41943.16	4787.94	125594.73	7.51	0.92	21.76	29.44	3.36	88.15	37.38	1.88	130.45	66.82	6.38	207.37
	50,000-99,999	30664.65	3668.48	89801.84	5.61	0.73	15.83	22.94	2.74	67.17	29.88	1.58	102.57	52.82	5.29	160.55
	100,000-999,999	137877.11	17338.15	382255.41	26.41	3.60	70.07	106.33	13.37	294.80	145.45	7.49	495.29	251.78	24.67	745.80
	1,000,000+	272260.35	48252.73	600830.54	64.47	11.92	137.44	209.97	37.21	463.36	355.83	23.35	1092.82	565.80	70.46	1497.89
	All	514149.89	78383.19	1285283.18	109.49	18.08	259.27	388.30	59.55	966.34	592.69	35.57	1900.89	980.99	110.33	2713.37
	Alternative A2															
Filtered and Unfiltered	<100	134.29	10.94	442.10	0.02	0.00	0.07	0.08	0.01	0.28	0.10	0.00	0.36	0.18	0.01	0.61
	100-499	800.81	70.88	2537.17	0.13	0.01	0.42	0.50	0.04	1.59	0.59	0.02	2.13	1.09	0.08	3.55
	500-999	1031.39	95.73	3190.84	0.18	0.02	0.54	0.64	0.06	1.99	0.77	0.03	2.81	1.42	0.11	4.52
	1,000-3,299	6393.25	641.76	19469.25	1.11	0.12	3.31	4.00	0.40	12.17	4.89	0.22	17.38	8.88	0.77	27.86
	3,300-9,999	19189.96	2035.63	57212.10	3.41	0.39	9.87	11.99	1.27	35.76	15.00	0.72	52.53	27.00	2.47	83.12
	10,000-49,999	36675.29	4245.01	111033.52	6.64	0.83	19.38	25.74	2.98	77.93	33.05	1.69	114.61	58.79	5.70	180.55
	50,000-99,999	26997.07	3294.88	79731.25	5.00	0.67	14.10	20.19	2.46	59.64	26.66	1.47	91.10	46.85	4.79	141.77
	100,000-999,999	122735.17	15832.87	339171.04	23.90	3.34	62.90	94.65	12.21	261.57	131.70	6.91	442.27	226.36	22.59	664.41
	1,000,000+	262050.44	47122.98	571441.58	62.78	11.73	132.19	202.09	36.34	440.70	346.56	22.93	1057.84	548.65	68.88	1437.49
	All	476007.68	74499.02	1173586.21	103.18	17.34	240.78	359.90	56.64	884.85	559.33	34.12	1776.44	919.23	105.82	2532.79
	Alternative A3 - Preferred															
Filtered and Unfiltered	<100	116.85	9.29	394.57	0.02	0.00	0.07	0.07	0.01	0.25	0.09	0.00	0.32	0.16	0.01	0.53
	100-499	695.94	61.19	2257.33	0.12	0.01	0.38	0.43	0.04	1.41	0.52	0.02	1.86	0.95	0.07	3.09
	500-999	896.50	84.52	2824.75	0.15	0.02	0.48	0.56	0.05	1.77	0.68	0.03	2.44	1.24	0.10	3.96
	1,000-3,299	5580.90	573.42	17254.70	0.98	0.11	2.94	3.49	0.36	10.78	4.30	0.20	15.23	7.78	0.67	24.35
	3,300-9,999	16855.24	1826.54	50907.39	3.02	0.35	8.85	10.54	1.14	31.82	13.31	0.65	46.24	23.84	2.22	73.25
	10,000-49,999	34034.00	3966.43	102346.12	6.20	0.79	17.93	23.89	2.78	71.83	30.88	1.60	106.59	54.77	5.36	167.86
	50,000-99,999	25158.23	3109.94	73758.06	4.70	0.64	13.20	18.82	2.33	55.17	25.05	1.39	85.59	43.86	4.54	131.99
	100,000-999,999	115001.21	14853.46	315512.31	22.62	3.19	58.97	88.69	11.46	243.32	124.70	6.61	416.26	213.39	21.43	621.30
	1,000,000+	256830.89	46512.91	555816.25	61.92	11.63	129.67	198.07	35.87	428.65	341.83	22.74	1040.99	539.90	68.07	1409.10
	All	455169.76	72128.02	1112374.31	99.73	16.93	230.35	344.55	54.75	838.45	541.34	33.28	1716.09	885.89	103.31	2419.77
	Alternative A4															
Filtered and Unfiltered	<100	95.00	7.51	324.69	0.02	0.00	0.05	0.06	0.00	0.20	0.07	0.00	0.26	0.13	0.01	0.43
	100-499	565.09	51.89	1838.03	0.10	0.01	0.31	0.35	0.03	1.15	0.42	0.02	1.53	0.77	0.06	2.50
	500-999	728.08	71.21	2293.34	0.13	0.01	0.39	0.46	0.04	1.43	0.55	0.02	1.98	1.01	0.08	3.20
	1,000-3,299	4567.79	492.30	14106.59	0.81	0.09	2.43	2.86	0.31	8.82	3.56	0.17	12.48	6.41	0.58	19.95
	3,300-9,999	13944.68	1590.45	41861.42	2.54	0.31	7.36	8.72	0.99	26.16	11.19	0.57	38.38	19.91	1.95	60.18
	10,000-49,999	26176.83	3171.20	78276.97	4.90	0.65	13.86	18.37	2.23	54.94	24.42	1.35	83.49	42.79	4.40	129.41
	50,000-99,999	19688.31	2542.68	56789.31	3.79	0.54	10.32	14.73	1.90	42.48	20.23	1.19	68.02	34.96	3.85	102.66
	100,000-999,999	92438.57	12564.19	251576.16	18.89	2.83	48.03	71.29	9.69	194.02	104.17	5.76	341.04	175.46	18.42	499.93
	1,000,000+	241595.12	44959.77	510817.51	59.40	11.35	122.35	186.32	34.67	393.94	327.98	22.20	987.90	514.30	65.91	1328.31
	All	399799.46	66646.20	949132.24	90.56	16.01	203.71	303.14	50.78	716.30	492.60	31.32	1538.23	795.74	96.28	2133.89

Exhibit C.4c
Cases Avoided and Benefits Annualized at 3 Percent (Based on Enhanced Cost of Illness), ICRSSL Data Set

		Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Size Category	Mean A	Lower (5th %ile) B	Upper (95th %ile) C	Mean D	Lower (5th %ile) E	Upper (95th %ile) F	Mean G	Lower (5th %ile) H	Upper (95th %ile) I	Mean J	Lower (5th %ile) K	Upper (95th %ile) L	Mean M	Lower (5th %ile) N	Upper (95th %ile) O
Alternative A1																
Filtered and Unfiltered	<100	86.00	7.75	259.15	0.01	0.00	0.04	0.05	0.00	0.16	0.06	0.00	0.23	0.12	0.01	0.38
	100-499	523.66	50.90	1529.30	0.09	0.01	0.26	0.33	0.03	0.96	0.38	0.02	1.41	0.71	0.05	2.33
	500-999	679.13	71.34	1911.71	0.12	0.01	0.32	0.42	0.04	1.19	0.50	0.02	1.83	0.93	0.07	3.01
	1,000-3,299	4218.60	470.81	11658.34	0.73	0.09	1.98	2.64	0.29	7.29	3.19	0.14	11.50	5.83	0.50	18.60
	3,300-9,999	12618.01	1493.70	34320.17	2.22	0.28	5.91	7.89	0.93	21.45	9.75	0.47	34.65	17.63	1.59	55.37
	10,000-49,999	23822.04	2942.95	65487.42	4.26	0.56	11.40	16.72	2.07	45.96	21.17	1.11	74.63	37.89	3.72	117.98
	50,000-99,999	17421.22	2232.76	47050.11	3.19	0.43	8.32	13.03	1.67	35.19	16.94	0.93	58.99	29.97	3.07	91.56
	100,000-999,999	78814.79	10437.25	208694.02	15.10	2.15	38.45	60.78	8.05	160.95	82.94	4.31	282.18	143.72	14.10	428.45
	1,000,000+	154808.39	27705.49	337935.19	36.66	6.80	77.61	119.39	21.37	260.62	202.19	13.38	616.25	321.57	39.92	853.41
	All	292991.84	45926.15	702368.65	62.37	10.45	143.22	221.25	34.80	528.84	337.12	20.51	1081.39	558.37	63.41	1553.42
Alternative A2																
Filtered and Unfiltered	<100	63.97	5.58	194.58	0.01	0.00	0.03	0.04	0.00	0.12	0.05	0.00	0.17	0.09	0.01	0.29
	100-499	391.00	37.66	1167.01	0.07	0.01	0.20	0.24	0.02	0.73	0.29	0.01	1.05	0.53	0.04	1.74
	500-999	508.04	53.52	1459.18	0.09	0.01	0.25	0.32	0.03	0.91	0.38	0.02	1.39	0.70	0.06	2.27
	1,000-3,299	3187.64	356.45	8967.36	0.56	0.07	1.53	1.99	0.22	5.60	2.45	0.11	8.79	4.44	0.38	14.12
	3,300-9,999	9654.49	1162.84	26536.18	1.73	0.22	4.59	6.03	0.73	16.59	7.60	0.38	26.93	13.63	1.27	42.57
	10,000-49,999	17884.34	2273.40	50631.27	3.28	0.44	8.90	12.55	1.60	35.54	16.30	0.89	56.79	28.85	2.93	88.44
	50,000-99,999	13287.31	1755.93	36565.86	2.50	0.35	6.56	9.94	1.31	27.35	13.31	0.77	45.56	23.25	2.49	69.46
	100,000-999,999	61824.24	8366.57	159730.63	12.29	1.81	30.21	47.68	6.45	123.18	67.54	3.68	223.80	115.22	11.66	338.09
	1,000,000+	143352.04	26275.36	303198.54	34.76	6.57	72.02	110.55	20.26	233.83	191.81	12.92	582.29	302.36	38.39	787.83
	All	250153.08	40611.88	578528.26	55.28	9.55	122.64	189.35	30.86	436.75	299.72	19.02	940.02	489.07	57.53	1340.89
Alternative A3 - Preferred																
Filtered and Unfiltered	<100	48.41	3.93	150.55	0.01	0.00	0.03	0.03	0.00	0.09	0.04	0.00	0.13	0.07	0.00	0.22
	100-499	297.47	26.66	892.46	0.05	0.00	0.15	0.19	0.02	0.56	0.22	0.01	0.81	0.41	0.03	1.34
	500-999	388.02	38.99	1135.70	0.07	0.01	0.19	0.24	0.02	0.71	0.29	0.01	1.07	0.54	0.04	1.73
	1,000-3,299	2464.79	276.20	7038.66	0.44	0.05	1.21	1.54	0.17	4.40	1.92	0.09	6.86	3.46	0.30	10.94
	3,300-9,999	7576.97	921.64	20947.38	1.39	0.18	3.67	4.74	0.58	13.09	6.09	0.32	21.30	10.83	1.04	33.50
	10,000-49,999	15369.53	1962.28	43357.99	2.87	0.39	7.73	10.79	1.38	30.43	14.24	0.81	49.17	25.03	2.59	76.39
	50,000-99,999	11536.49	1527.72	31619.61	2.21	0.31	5.75	8.63	1.14	23.65	11.77	0.71	39.76	20.40	2.22	60.83
	100,000-999,999	54582.53	7545.69	138635.78	11.09	1.67	26.77	42.09	5.82	106.92	60.99	3.43	201.97	103.09	10.78	298.86
	1,000,000+	138465.93	25761.80	288235.70	33.95	6.47	69.48	106.79	19.87	222.29	187.39	12.79	567.38	294.17	37.69	761.40
	All	230730.13	38281.04	521924.61	52.07	9.16	112.80	175.03	29.19	394.53	282.95	18.23	881.17	457.99	54.94	1242.24
Alternative A4																
Filtered and Unfiltered	<100	35.61	2.77	114.19	0.01	0.00	0.02	0.02	0.00	0.07	0.03	0.00	0.10	0.05	0.00	0.16
	100-499	220.59	20.02	677.31	0.04	0.00	0.11	0.14	0.01	0.42	0.17	0.01	0.61	0.30	0.02	1.01
	500-999	288.91	29.31	848.72	0.05	0.01	0.15	0.18	0.02	0.53	0.22	0.01	0.80	0.40	0.03	1.29
	1,000-3,299	1868.08	211.34	5285.57	0.34	0.04	0.92	1.17	0.13	3.30	1.49	0.08	5.26	2.66	0.24	8.27
	3,300-9,999	5862.18	712.23	15981.82	1.10	0.15	2.87	3.66	0.45	9.99	4.85	0.27	16.69	8.51	0.86	25.69
	10,000-49,999	10655.08	1379.18	30256.13	2.09	0.29	5.52	7.48	0.97	21.24	10.38	0.64	34.64	17.85	2.00	52.68
	50,000-99,999	8254.34	1133.26	22392.13	1.67	0.25	4.20	6.17	0.85	16.75	8.89	0.58	29.16	15.07	1.79	43.14
	100,000-999,999	41242.63	6196.97	100485.59	8.88	1.44	20.42	31.81	4.78	77.49	48.90	2.95	156.27	80.71	9.03	226.22
	1,000,000+	129464.78	24702.01	263960.78	32.47	6.30	65.41	99.84	19.05	203.57	179.23	12.40	539.14	279.08	36.30	714.77
	All	197892.20	34571.95	431262.95	46.64	8.56	97.54	150.47	26.39	326.55	254.15	17.08	773.95	404.63	50.90	1069.94

Exhibit C.4d
Cases Avoided and Benefits Annualized at 3 Percent (Based on Traditional Cost of Illness), ICR Data Set

		Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Size Category	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Alternative A1																
Filtered and Unfiltered	<100	325.12	27.86	1031.82	0.05	0.00	0.17	0.06	0.01	0.19	0.24	0.01	0.86	0.30	0.02	1.01
	100-499	1767.96	176.02	5156.90	0.30	0.03	0.86	0.33	0.03	0.95	1.31	0.06	4.57	1.63	0.11	5.35
	500-999	2196.90	237.03	6094.05	0.37	0.04	1.03	0.41	0.04	1.13	1.64	0.08	5.60	2.05	0.15	6.58
	1,000-3,299	13189.76	1514.30	35442.15	2.28	0.27	6.04	2.44	0.28	6.56	10.03	0.50	33.48	12.47	0.97	39.02
	3,300-9,999	39029.09	4675.44	103357.81	6.87	0.86	17.92	7.22	0.86	19.12	30.30	1.59	99.99	37.52	3.07	115.01
	10,000-49,999	79199.15	9458.58	214320.22	14.18	1.79	37.55	16.51	1.97	44.67	70.68	3.84	235.03	87.19	7.28	274.62
	50,000-99,999	57812.83	7165.92	154332.93	10.57	1.41	27.48	12.87	1.60	34.35	56.42	3.24	186.11	69.29	6.07	214.96
	100,000-999,999	261817.81	32900.33	677892.83	50.15	6.90	125.37	60.14	7.56	155.72	276.67	15.32	903.36	336.81	28.38	1028.39
	1,000,000+	534615.61	94112.54	1159827.15	126.60	23.19	266.17	122.81	21.62	266.43	699.05	46.54	2141.35	821.86	80.93	2347.08
	All	989954.23	151965.26	2347055.39	211.38	34.84	480.39	222.79	34.34	527.10	1146.33	71.74	3598.65	1369.12	129.65	4017.08
Alternative A2																
Filtered and Unfiltered	<100	319.39	27.10	1014.73	0.05	0.00	0.17	0.06	0.01	0.19	0.23	0.01	0.85	0.29	0.02	1.00
	100-499	1733.29	171.10	5095.94	0.29	0.03	0.85	0.32	0.03	0.94	1.28	0.06	4.48	1.60	0.11	5.25
	500-999	2140.11	230.21	5933.73	0.36	0.04	1.00	0.40	0.04	1.10	1.60	0.07	5.46	2.00	0.15	6.39
	1,000-3,299	12847.44	1473.04	34566.55	2.22	0.26	5.90	2.38	0.27	6.39	9.79	0.49	32.69	12.16	0.95	37.95
	3,300-9,999	38044.97	4557.49	100971.74	6.71	0.84	17.52	7.04	0.84	18.68	29.59	1.56	97.75	36.62	3.02	112.21
	10,000-49,999	77177.93	9254.65	208185.56	13.84	1.76	36.57	16.09	1.93	43.39	69.02	3.76	229.93	85.11	7.14	267.32
	50,000-99,999	56405.61	7026.79	149991.86	10.34	1.38	26.73	12.55	1.56	33.39	55.18	3.18	181.38	67.74	5.93	209.73
	100,000-999,999	255978.43	32308.03	661218.02	49.19	6.80	122.49	58.80	7.42	151.89	271.37	15.13	885.02	330.17	27.94	1006.89
	1,000,000+	530678.56	93635.29	1150006.60	125.95	23.12	264.43	121.91	21.51	264.18	695.48	46.42	2129.56	817.38	80.65	2334.41
	All	975325.72	150295.25	2307247.28	208.95	34.59	473.76	219.54	33.97	518.21	1133.54	71.20	3547.42	1353.08	128.59	3969.02
Alternative A3 - Preferred																
Filtered and Unfiltered	<100	309.47	26.06	981.00	0.05	0.00	0.16	0.06	0.00	0.18	0.23	0.01	0.82	0.28	0.02	0.97
	100-499	1673.63	164.23	4927.86	0.28	0.03	0.82	0.31	0.03	0.91	1.24	0.05	4.35	1.55	0.11	5.06
	500-999	2064.02	222.06	5723.13	0.35	0.04	0.96	0.38	0.04	1.06	1.55	0.07	5.27	1.93	0.14	6.16
	1,000-3,299	12389.02	1425.38	33296.63	2.14	0.26	5.70	2.29	0.26	6.16	9.45	0.47	31.55	11.75	0.93	36.76
	3,300-9,999	36727.33	4420.72	97338.89	6.49	0.82	16.90	6.79	0.82	18.01	28.63	1.52	94.61	35.42	2.93	108.83
	10,000-49,999	75872.19	9141.26	204711.07	13.63	1.73	35.94	15.81	1.91	42.67	67.95	3.71	226.08	83.77	7.02	263.43
	50,000-99,999	55496.55	6925.94	147408.91	10.19	1.37	26.30	12.35	1.54	32.81	54.39	3.15	178.22	66.74	5.86	205.51
	100,000-999,999	251900.25	31918.97	649104.43	48.51	6.73	120.62	57.87	7.33	149.11	267.68	14.95	872.08	325.54	27.71	991.93
	1,000,000+	527927.57	93327.35	1141902.96	125.49	23.07	263.18	121.27	21.44	262.32	692.99	46.29	2119.95	814.26	80.48	2324.94
	All	964360.04	149240.82	2277366.81	207.14	34.41	468.44	217.14	33.74	511.38	1124.10	70.79	3511.27	1341.24	127.85	3929.17
Alternative A4																
Filtered and Unfiltered	<100	270.15	22.93	850.18	0.05	0.00	0.14	0.05	0.00	0.16	0.20	0.01	0.72	0.25	0.01	0.85
	100-499	1445.35	145.37	4187.44	0.24	0.03	0.70	0.27	0.03	0.77	1.07	0.05	3.74	1.34	0.09	4.36
	500-999	1770.08	197.09	4832.42	0.30	0.03	0.82	0.33	0.04	0.89	1.33	0.06	4.49	1.66	0.13	5.24
	1,000-3,299	10634.22	1285.03	28183.78	1.85	0.23	4.84	1.97	0.24	5.21	8.18	0.43	27.07	10.14	0.83	31.23
	3,300-9,999	31698.05	4002.05	82425.38	5.66	0.75	14.42	5.86	0.74	15.25	24.97	1.38	81.67	30.83	2.68	93.67
	10,000-49,999	68037.66	8293.10	181324.07	12.33	1.61	32.00	14.18	1.73	37.79	61.49	3.47	203.52	75.67	6.51	235.12
	50,000-99,999	50043.66	6380.31	130899.24	9.29	1.29	23.55	11.14	1.42	29.14	49.57	2.97	161.86	60.71	5.44	184.95
	100,000-999,999	227342.62	29206.04	573203.86	44.45	6.28	108.03	52.22	6.71	131.68	245.36	14.04	793.50	297.58	26.24	904.40
	1,000,000+	511258.27	91578.02	1092712.44	122.73	22.79	254.52	117.45	21.04	251.02	677.84	45.60	2060.02	795.28	79.09	2267.64
	All	902500.06	143230.98	2088992.85	196.90	33.32	437.40	203.47	32.44	469.66	1070.01	68.83	3323.94	1273.48	123.62	3692.17

Exhibit C.4e
Cases Avoided and Benefits Annualized at 3 Percent (Based on Traditional Cost of Illness), ICRSSM Data Set

		Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Size Category	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Alternative A1															
Filtered and Unfiltered	<100	153.72	12.68	494.33	0.03	0.00	0.08	0.03	0.00	0.09	0.11	0.00	0.41	0.14	0.01	0.49
	100-499	917.76	80.98	2870.49	0.15	0.01	0.48	0.17	0.01	0.53	0.68	0.03	2.45	0.85	0.05	2.90
	500-999	1184.12	108.55	3641.33	0.20	0.02	0.61	0.22	0.02	0.67	0.88	0.04	3.19	1.10	0.07	3.74
	1,000-3,299	7313.58	720.97	22096.30	1.26	0.13	3.75	1.35	0.13	4.09	5.55	0.25	19.75	6.91	0.46	23.10
	3,300-9,999	21835.44	2267.08	64761.19	3.84	0.43	11.11	4.04	0.42	11.98	16.92	0.80	59.62	20.96	1.50	69.00
	10,000-49,999	41943.16	4787.94	125594.73	7.51	0.92	21.76	8.74	1.00	26.18	37.38	1.88	130.45	46.12	3.47	152.20
	50,000-99,999	30664.65	3668.48	89801.84	5.61	0.73	15.83	6.83	0.82	19.99	29.88	1.58	102.57	36.71	2.90	118.81
	100,000-999,999	137877.11	17338.15	382255.41	26.41	3.60	70.07	31.67	3.98	87.81	145.45	7.49	495.29	177.12	13.52	565.80
	1,000,000+	272260.35	48252.73	600830.54	64.47	11.92	137.44	62.54	11.08	138.02	355.83	23.35	1092.82	418.37	39.04	1210.31
	All	514149.89	78383.19	1285283.18	109.49	18.08	259.27	115.59	17.73	287.65	592.69	35.57	1900.89	708.28	62.00	2140.09
	Alternative A2															
Filtered and Unfiltered	<100	134.29	10.94	442.10	0.02	0.00	0.07	0.02	0.00	0.08	0.10	0.00	0.36	0.12	0.01	0.43
	100-499	800.81	70.88	2537.17	0.13	0.01	0.42	0.15	0.01	0.47	0.59	0.02	2.13	0.74	0.04	2.56
	500-999	1031.39	95.73	3190.84	0.18	0.02	0.54	0.19	0.02	0.59	0.77	0.03	2.81	0.96	0.06	3.29
	1,000-3,299	6393.25	641.76	19469.25	1.11	0.12	3.31	1.18	0.12	3.60	4.89	0.22	17.38	6.07	0.41	20.38
	3,300-9,999	19189.96	2035.63	57212.10	3.41	0.39	9.87	3.55	0.38	10.58	15.00	0.72	52.53	18.55	1.35	61.20
	10,000-49,999	36675.29	4245.01	111033.52	6.64	0.83	19.38	7.64	0.88	23.14	33.05	1.69	114.61	40.70	3.13	133.62
	50,000-99,999	26997.07	3294.88	79731.25	5.00	0.67	14.10	6.01	0.73	17.75	26.66	1.47	91.10	32.67	2.66	105.31
	100,000-999,999	122735.17	15832.87	339171.04	23.90	3.34	62.90	28.19	3.64	77.91	131.70	6.91	442.27	159.90	12.43	505.67
	1,000,000+	262050.44	47122.98	571441.58	62.78	11.73	132.19	60.20	10.83	131.27	346.56	22.93	1057.84	406.76	38.30	1171.69
	All	476007.68	74499.02	1173586.21	103.18	17.34	240.78	107.14	16.87	263.39	559.33	34.12	1776.44	666.47	59.26	1995.18
	Alternative A3 - Preferred															
Filtered and Unfiltered	<100	116.85	9.29	394.57	0.02	0.00	0.07	0.02	0.00	0.07	0.09	0.00	0.32	0.11	0.01	0.38
	100-499	695.94	61.19	2257.33	0.12	0.01	0.38	0.13	0.01	0.42	0.52	0.02	1.86	0.65	0.04	2.24
	500-999	896.50	84.52	2824.75	0.15	0.02	0.48	0.17	0.02	0.52	0.68	0.03	2.44	0.84	0.05	2.87
	1,000-3,299	5580.90	573.42	17254.70	0.98	0.11	2.94	1.03	0.11	3.19	4.30	0.20	15.23	5.33	0.36	17.90
	3,300-9,999	16855.24	1826.54	50907.39	3.02	0.35	8.85	3.12	0.34	9.42	13.31	0.65	46.24	16.42	1.22	54.15
	10,000-49,999	34034.00	3966.43	102346.12	6.20	0.79	17.93	7.09	0.83	21.33	30.88	1.60	106.59	37.98	2.95	124.22
	50,000-99,999	25158.23	3109.94	73758.06	4.70	0.64	13.20	5.60	0.69	16.42	25.05	1.39	85.59	30.65	2.54	98.64
	100,000-999,999	115001.21	14853.46	315512.31	22.62	3.19	58.97	26.42	3.41	72.48	124.70	6.61	416.26	151.11	11.90	476.01
	1,000,000+	256830.89	46512.91	555816.25	61.92	11.63	129.67	59.00	10.68	127.68	341.83	22.74	1040.99	400.83	37.94	1150.53
	All	455169.76	72128.02	1112374.31	99.73	16.93	230.35	102.58	16.30	249.59	541.34	33.28	1716.09	643.92	57.80	1919.36
	Alternative A4															
Filtered and Unfiltered	<100	95.00	7.51	324.69	0.02	0.00	0.05	0.02	0.00	0.06	0.07	0.00	0.26	0.09	0.00	0.31
	100-499	565.09	51.89	1838.03	0.10	0.01	0.31	0.10	0.01	0.34	0.42	0.02	1.53	0.53	0.03	1.81
	500-999	728.08	71.21	2293.34	0.13	0.01	0.39	0.13	0.01	0.42	0.55	0.02	1.98	0.69	0.04	2.33
	1,000-3,299	4567.79	492.30	14106.59	0.81	0.09	2.43	0.85	0.09	2.61	3.56	0.17	12.48	4.40	0.31	14.66
	3,300-9,999	13944.68	1590.45	41861.42	2.54	0.31	7.36	2.58	0.29	7.74	11.19	0.57	38.38	13.77	1.07	44.74
	10,000-49,999	26176.83	3171.20	78276.97	4.90	0.65	13.86	5.46	0.66	16.32	24.42	1.35	83.49	29.88	2.45	96.16
	50,000-99,999	19688.31	2542.68	56789.31	3.79	0.54	10.32	4.38	0.57	12.64	20.23	1.19	68.02	24.61	2.17	77.91
	100,000-999,999	92438.57	12564.19	251576.16	18.89	2.83	48.03	21.23	2.89	57.79	104.17	5.76	341.04	125.41	10.35	386.34
	1,000,000+	241595.12	44959.77	510817.51	59.40	11.35	122.35	55.50	10.33	117.34	327.98	22.20	987.90	383.48	36.90	1089.04
	All	399799.46	66646.20	949132.24	90.56	16.01	203.71	90.25	15.12	213.23	492.60	31.32	1538.23	582.85	54.09	1706.40

Exhibit C.4f
Cases Avoided and Benefits Annualized at 3 Percent (Based on Traditional Cost of Illness), ICRSSL Data Set

		Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Size Category	Mean A	Lower (5th %ile) B	Upper (95th %ile) C	Mean D	Lower (5th %ile) E	Upper (95th %ile) F	Mean G	Lower (5th %ile) H	Upper (95th %ile) I	Mean J	Lower (5th %ile) K	Upper (95th %ile) L	Mean M	Lower (5th %ile) N	Upper (95th %ile) O
Alternative A1																
Filtered and Unfiltered	<100	86.00	7.75	259.15	0.01	0.00	0.04	0.02	0.00	0.05	0.06	0.00	0.23	0.08	0.00	0.27
	100-499	523.66	50.90	1529.30	0.09	0.01	0.26	0.10	0.01	0.28	0.38	0.02	1.41	0.48	0.03	1.66
	500-999	679.13	71.34	1911.71	0.12	0.01	0.32	0.13	0.01	0.35	0.50	0.02	1.83	0.63	0.04	2.16
	1,000-3,299	4218.60	470.81	11658.34	0.73	0.09	1.98	0.78	0.09	2.16	3.19	0.14	11.50	3.97	0.27	13.45
	3,300-9,999	12618.01	1493.70	34320.17	2.22	0.28	5.91	2.33	0.28	6.35	9.75	0.47	34.65	12.08	0.86	40.41
	10,000-49,999	23822.04	2942.95	65487.42	4.26	0.56	11.40	4.97	0.61	13.65	21.17	1.11	74.63	26.14	1.98	86.99
	50,000-99,999	17421.22	2232.76	47050.11	3.19	0.43	8.32	3.88	0.50	10.47	16.94	0.93	58.99	20.81	1.66	68.34
	100,000-999,999	78814.79	10437.25	208694.02	15.10	2.15	38.45	18.11	2.40	47.94	82.94	4.31	282.18	101.04	7.67	323.50
	1,000,000+	154808.39	27705.49	337935.19	36.66	6.80	77.61	35.56	6.36	77.63	202.19	13.38	616.25	237.75	22.54	684.00
	All	292991.84	45926.15	702368.65	62.37	10.45	143.22	65.86	10.36	157.42	337.12	20.51	1081.39	402.99	35.20	1218.72
Alternative A2																
Filtered and Unfiltered	<100	63.97	5.58	194.58	0.01	0.00	0.03	0.01	0.00	0.04	0.05	0.00	0.17	0.06	0.00	0.21
	100-499	391.00	37.66	1167.01	0.07	0.01	0.20	0.07	0.01	0.22	0.29	0.01	1.05	0.36	0.02	1.25
	500-999	508.04	53.52	1459.18	0.09	0.01	0.25	0.09	0.01	0.27	0.38	0.02	1.39	0.48	0.03	1.63
	1,000-3,299	3187.64	356.45	8967.36	0.56	0.07	1.53	0.59	0.07	1.66	2.45	0.11	8.79	3.03	0.21	10.25
	3,300-9,999	9654.49	1162.84	26536.18	1.73	0.22	4.59	1.79	0.22	4.91	7.60	0.38	26.93	9.38	0.69	31.25
	10,000-49,999	17884.34	2273.40	50631.27	3.28	0.44	8.90	3.73	0.47	10.55	16.30	0.89	56.79	20.03	1.61	65.66
	50,000-99,999	13287.31	1755.93	36565.86	2.50	0.35	6.56	2.96	0.39	8.14	13.31	0.77	45.56	16.27	1.38	52.37
	100,000-999,999	61824.24	8366.57	159730.63	12.29	1.81	30.21	14.20	1.92	36.69	67.54	3.68	223.80	81.74	6.47	256.78
	1,000,000+	143352.04	26275.36	303198.54	34.76	6.57	72.02	32.93	6.04	69.65	191.81	12.92	582.29	224.74	21.66	640.09
	All	250153.08	40611.88	578528.26	55.28	9.55	122.64	56.37	9.19	130.01	299.72	19.02	940.02	356.09	32.31	1065.43
Alternative A3 - Preferred																
Filtered and Unfiltered	<100	48.41	3.93	150.55	0.01	0.00	0.03	0.01	0.00	0.03	0.04	0.00	0.13	0.04	0.00	0.16
	100-499	297.47	26.66	892.46	0.05	0.00	0.15	0.06	0.00	0.17	0.22	0.01	0.81	0.28	0.02	0.96
	500-999	388.02	38.99	1135.70	0.07	0.01	0.19	0.07	0.01	0.21	0.29	0.01	1.07	0.37	0.02	1.26
	1,000-3,299	2464.79	276.20	7038.66	0.44	0.05	1.21	0.46	0.05	1.30	1.92	0.09	6.86	2.38	0.17	8.04
	3,300-9,999	7576.97	921.64	20947.38	1.39	0.18	3.67	1.40	0.17	3.88	6.09	0.32	21.30	7.50	0.58	24.70
	10,000-49,999	15369.53	1962.28	43357.99	2.87	0.39	7.73	3.20	0.41	9.04	14.24	0.81	49.17	17.44	1.44	56.46
	50,000-99,999	11536.49	1527.72	31619.61	2.21	0.31	5.75	2.57	0.34	7.04	11.77	0.71	39.76	14.34	1.25	45.68
	100,000-999,999	54582.53	7545.69	138635.78	11.09	1.67	26.77	12.54	1.73	31.85	60.99	3.43	201.97	73.53	5.99	229.04
	1,000,000+	138465.93	25761.80	288235.70	33.95	6.47	69.48	31.81	5.92	66.21	187.39	12.79	567.38	219.20	21.35	622.33
	All	230730.13	38281.04	521924.61	52.07	9.16	112.80	52.11	8.69	117.45	282.95	18.23	881.17	335.07	31.03	989.12
Alternative A4																
Filtered and Unfiltered	<100	35.61	2.77	114.19	0.01	0.00	0.02	0.01	0.00	0.02	0.03	0.00	0.10	0.03	0.00	0.12
	100-499	220.59	20.02	677.31	0.04	0.00	0.11	0.04	0.00	0.13	0.17	0.01	0.61	0.21	0.01	0.72
	500-999	288.91	29.31	848.72	0.05	0.01	0.15	0.05	0.01	0.16	0.22	0.01	0.80	0.28	0.02	0.94
	1,000-3,299	1868.08	211.34	5285.57	0.34	0.04	0.92	0.35	0.04	0.98	1.49	0.08	5.26	1.83	0.14	6.11
	3,300-9,999	5862.18	712.23	15981.82	1.10	0.15	2.87	1.08	0.13	2.96	4.85	0.27	16.69	5.93	0.48	19.21
	10,000-49,999	10655.08	1379.18	30256.13	2.09	0.29	5.52	2.22	0.29	6.31	10.38	0.64	34.64	12.60	1.13	39.57
	50,000-99,999	8254.34	1133.26	22392.13	1.67	0.25	4.20	1.84	0.25	4.98	8.89	0.58	29.16	10.73	1.01	33.15
	100,000-999,999	41242.63	6196.97	100485.59	8.88	1.44	20.42	9.47	1.42	23.08	48.90	2.95	156.27	58.37	5.08	176.48
	1,000,000+	129464.78	24702.01	263960.78	32.47	6.30	65.41	29.74	5.67	60.64	179.23	12.40	539.14	208.97	20.70	589.92
	All	197892.20	34571.95	431262.95	46.64	8.56	97.54	44.80	7.86	97.22	254.15	17.08	773.95	298.96	28.87	860.89

Exhibit C.5a
Cases Avoided and Benefits Annualized at 7 Percent (Based on Enhanced Cost of Illness), ICR Data Set

		Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Size Category	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Alternative A1																
Filtered and Unfiltered	<100	325.12	27.86	1031.82	0.05	0.00	0.17	0.15	0.01	0.49	0.18	0.01	0.65	0.33	0.02	1.08
	100-499	1767.96	176.02	5156.90	0.30	0.03	0.86	0.83	0.08	2.43	0.99	0.04	3.47	1.83	0.15	5.58
	500-999	2196.90	237.03	6094.05	0.37	0.04	1.03	1.04	0.11	2.87	1.25	0.06	4.25	2.28	0.21	6.86
	1,000-3,299	13189.76	1514.30	35442.15	2.28	0.27	6.04	6.22	0.71	16.72	7.62	0.38	25.44	13.84	1.33	40.92
	3,300-9,999	39029.09	4675.44	103357.81	6.87	0.86	17.92	18.41	2.21	48.75	23.00	1.21	75.97	41.41	4.23	120.47
	10,000-49,999	79199.15	9458.58	214320.22	14.18	1.79	37.55	43.56	5.20	117.87	55.77	3.04	185.47	99.33	10.38	290.23
	50,000-99,999	57812.83	7165.92	154332.93	10.57	1.41	27.48	34.66	4.30	92.53	45.57	2.62	150.28	80.23	8.76	231.15
	100,000-999,999	261817.81	32900.33	677892.83	50.15	6.90	125.37	163.64	20.56	423.69	226.02	12.53	739.00	389.66	40.72	1117.99
	1,000,000+	534615.61	94112.54	1159827.15	126.60	23.19	266.17	334.14	58.82	724.91	571.06	37.97	1748.43	905.21	115.33	2353.18
	All	989954.23	151965.26	2347055.39	211.38	34.84	480.39	602.66	93.04	1424.68	931.45	58.15	2922.68	1534.11	183.85	4115.29
Alternative A2																
Filtered and Unfiltered	<100	319.39	27.10	1014.73	0.05	0.00	0.17	0.15	0.01	0.48	0.18	0.01	0.64	0.33	0.02	1.06
	100-499	1733.29	171.10	5095.94	0.29	0.03	0.85	0.82	0.08	2.40	0.97	0.04	3.41	1.79	0.15	5.46
	500-999	2140.11	230.21	5933.73	0.36	0.04	1.00	1.01	0.11	2.80	1.22	0.06	4.15	2.23	0.20	6.68
	1,000-3,299	12847.44	1473.04	34566.55	2.22	0.26	5.90	6.06	0.69	16.31	7.43	0.37	24.81	13.49	1.30	39.78
	3,300-9,999	38044.97	4557.49	100971.74	6.71	0.84	17.52	17.95	2.15	47.63	22.46	1.18	74.17	40.40	4.13	117.03
	10,000-49,999	77177.93	9254.65	208185.56	13.84	1.76	36.57	42.45	5.09	114.50	54.46	2.97	181.05	96.91	10.17	283.32
	50,000-99,999	56405.61	7026.79	149991.86	10.34	1.38	26.73	33.82	4.21	89.93	44.57	2.58	146.73	78.39	8.60	225.48
	100,000-999,999	255978.43	32308.03	661218.02	49.19	6.80	122.49	159.99	20.19	413.27	221.69	12.36	722.81	381.68	40.07	1089.57
	1,000,000+	530678.56	93635.29	1150006.60	125.95	23.12	264.43	331.68	58.52	718.77	568.15	37.86	1739.65	899.83	114.91	2335.31
	All	975325.72	150295.25	2307247.28	208.95	34.59	473.76	593.92	91.98	1401.08	921.12	57.72	2884.49	1515.04	182.44	4041.89
Alternative A3 - Preferred																
Filtered and Unfiltered	<100	309.47	26.06	981.00	0.05	0.00	0.16	0.15	0.01	0.46	0.17	0.01	0.62	0.32	0.02	1.03
	100-499	1673.63	164.23	4927.86	0.28	0.03	0.82	0.79	0.08	2.32	0.94	0.04	3.30	1.73	0.15	5.27
	500-999	2064.02	222.06	5723.13	0.35	0.04	0.96	0.97	0.10	2.70	1.17	0.05	4.00	2.15	0.19	6.44
	1,000-3,299	12389.02	1425.38	33296.63	2.14	0.26	5.70	5.84	0.67	15.71	7.18	0.36	23.92	13.02	1.26	38.25
	3,300-9,999	36727.33	4420.72	97338.89	6.49	0.82	16.90	17.32	2.09	45.91	21.73	1.15	71.74	39.05	4.01	112.78
	10,000-49,999	75872.19	9141.26	204711.07	13.63	1.73	35.94	41.73	5.03	112.59	53.62	2.93	178.22	95.35	10.01	278.75
	50,000-99,999	55496.55	6925.94	147408.91	10.19	1.37	26.30	33.27	4.15	88.38	43.93	2.56	144.45	77.20	8.48	222.32
	100,000-999,999	251900.25	31918.97	649104.43	48.51	6.73	120.62	157.44	19.95	405.70	218.67	12.22	712.81	376.11	39.61	1069.81
	1,000,000+	527927.57	93327.35	1141902.96	125.49	23.07	263.18	329.96	58.33	713.70	566.11	37.76	1729.85	896.07	114.51	2328.34
	All	964360.04	149240.82	2277366.81	207.14	34.41	468.44	587.48	91.37	1382.50	913.52	57.41	2856.42	1501.01	181.38	3997.81
Alternative A4																
Filtered and Unfiltered	<100	270.15	22.93	850.18	0.05	0.00	0.14	0.13	0.01	0.40	0.15	0.01	0.55	0.28	0.02	0.90
	100-499	1445.35	145.37	4187.44	0.24	0.03	0.70	0.68	0.07	1.98	0.81	0.04	2.84	1.50	0.13	4.53
	500-999	1770.08	197.09	4832.42	0.30	0.03	0.82	0.83	0.09	2.28	1.01	0.05	3.40	1.85	0.17	5.46
	1,000-3,299	10634.22	1285.03	28183.78	1.85	0.23	4.84	5.02	0.61	13.29	6.21	0.33	20.54	11.22	1.14	32.32
	3,300-9,999	31698.05	4002.05	82425.38	5.66	0.75	14.42	14.95	1.89	38.88	18.95	1.05	61.97	33.90	3.65	96.04
	10,000-49,999	68037.66	8293.10	181324.07	12.33	1.61	32.00	37.42	4.56	99.73	48.52	2.74	159.95	85.94	9.28	249.90
	50,000-99,999	50043.66	6380.31	130899.24	9.29	1.29	23.55	30.00	3.83	78.48	40.04	2.40	130.41	70.05	7.87	199.96
	100,000-999,999	227342.62	29206.04	573203.86	44.45	6.28	108.03	142.09	18.25	358.26	200.44	11.51	647.54	342.53	36.99	961.42
	1,000,000+	511258.27	91578.02	1092712.44	122.73	22.79	254.52	319.54	57.24	682.96	553.74	37.25	1679.27	873.28	112.80	2259.81
	All	902500.06	143230.98	2088992.85	196.90	33.32	437.40	550.67	87.94	1269.69	869.87	55.85	2702.74	1420.54	174.79	3766.45

Exhibit C.5b
Cases Avoided and Benefits Annualized at 7 Percent (Based on Enhanced Cost of Illness), ICRSSM Data Set

		Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Size Category	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	Alternative A1															
Filtered and Unfiltered	<100	153.72	12.68	494.33	0.03	0.00	0.08	0.07	0.01	0.23	0.09	0.00	0.31	0.16	0.01	0.52
	100-499	917.76	80.98	2870.49	0.15	0.01	0.48	0.43	0.04	1.35	0.51	0.02	1.85	0.95	0.07	3.05
	500-999	1184.12	108.55	3641.33	0.20	0.02	0.61	0.56	0.05	1.72	0.67	0.03	2.42	1.23	0.10	3.92
	1,000-3,299	7313.58	720.97	22096.30	1.26	0.13	3.75	3.45	0.34	10.42	4.22	0.19	14.98	7.67	0.65	24.03
	3,300-9,999	21835.44	2267.08	64761.19	3.84	0.43	11.11	10.30	1.07	30.55	12.84	0.60	45.24	23.14	2.09	71.29
	10,000-49,999	41943.16	4787.94	125594.73	7.51	0.92	21.76	23.07	2.63	69.08	29.49	1.48	102.81	52.56	5.01	163.16
	50,000-99,999	30664.65	3668.48	89801.84	5.61	0.73	15.83	18.39	2.20	53.84	24.14	1.27	82.90	42.52	4.26	129.55
	100,000-999,999	137877.11	17338.15	382255.41	26.41	3.60	70.07	86.18	10.84	238.91	118.82	6.13	404.68	205.00	20.09	607.28
	1,000,000+	272260.35	48252.73	600830.54	64.47	11.92	137.44	170.17	30.16	375.53	290.68	19.05	893.38	460.85	57.28	1220.20
	All	514149.89	78383.19	1285283.18	109.49	18.08	259.27	312.61	48.01	777.18	481.47	28.93	1541.36	794.08	89.46	2198.70
	Alternative A2															
Filtered and Unfiltered	<100	134.29	10.94	442.10	0.02	0.00	0.07	0.06	0.01	0.21	0.07	0.00	0.28	0.14	0.01	0.46
	100-499	800.81	70.88	2537.17	0.13	0.01	0.42	0.38	0.03	1.20	0.45	0.02	1.62	0.83	0.06	2.69
	500-999	1031.39	95.73	3190.84	0.18	0.02	0.54	0.49	0.05	1.51	0.59	0.02	2.13	1.07	0.09	3.43
	1,000-3,299	6393.25	641.76	19469.25	1.11	0.12	3.31	3.02	0.30	9.18	3.71	0.17	13.17	6.72	0.58	21.10
	3,300-9,999	19189.96	2035.63	57212.10	3.41	0.39	9.87	9.05	0.96	26.99	11.39	0.55	39.90	20.44	1.87	62.99
	10,000-49,999	36675.29	4245.01	111033.52	6.64	0.83	19.38	20.17	2.33	61.07	26.08	1.33	90.34	46.25	4.48	142.09
	50,000-99,999	26997.07	3294.88	79731.25	5.00	0.67	14.10	16.19	1.98	47.80	21.53	1.18	73.67	37.72	3.85	114.28
	100,000-999,999	122735.17	15832.87	339171.04	23.90	3.34	62.90	76.71	9.90	211.99	107.59	5.66	361.67	184.30	18.38	541.87
	1,000,000+	262050.44	47122.98	571441.58	62.78	11.73	132.19	163.79	29.45	357.16	283.11	18.74	864.91	446.90	55.93	1173.01
	All	476007.68	74499.02	1173586.21	103.18	17.34	240.78	289.85	45.69	711.77	454.53	27.74	1442.97	744.37	85.60	2050.61
	Alternative A3 - Preferred															
Filtered and Unfiltered	<100	116.85	9.29	394.57	0.02	0.00	0.07	0.06	0.00	0.19	0.06	0.00	0.24	0.12	0.01	0.40
	100-499	695.94	61.19	2257.33	0.12	0.01	0.38	0.33	0.03	1.06	0.39	0.02	1.42	0.72	0.05	2.34
	500-999	896.50	84.52	2824.75	0.15	0.02	0.48	0.42	0.04	1.33	0.51	0.02	1.85	0.94	0.07	3.00
	1,000-3,299	5580.90	573.42	17254.70	0.98	0.11	2.94	2.63	0.27	8.14	3.26	0.15	11.56	5.89	0.51	18.44
	3,300-9,999	16855.24	1826.54	50907.39	3.02	0.35	8.85	7.95	0.86	24.01	10.10	0.49	35.08	18.05	1.68	55.50
	10,000-49,999	34034.00	3966.43	102346.12	6.20	0.79	17.93	18.72	2.18	56.29	24.37	1.27	84.10	43.09	4.22	132.04
	50,000-99,999	25158.23	3109.94	73758.06	4.70	0.64	13.20	15.08	1.86	44.22	20.23	1.13	69.06	35.31	3.65	106.41
	100,000-999,999	115001.21	14853.46	315512.31	22.62	3.19	58.97	71.88	9.28	197.20	101.87	5.40	340.35	173.75	17.44	506.40
	1,000,000+	256830.89	46512.91	555816.25	61.92	11.63	129.67	160.52	29.07	347.39	279.25	18.59	850.97	439.77	55.36	1149.33
	All	455169.76	72128.02	1112374.31	99.73	16.93	230.35	277.59	44.15	674.86	440.05	27.13	1391.45	717.64	83.58	1961.08
	Alternative A4															
Filtered and Unfiltered	<100	95.00	7.51	324.69	0.02	0.00	0.05	0.04	0.00	0.15	0.05	0.00	0.20	0.10	0.01	0.33
	100-499	565.09	51.89	1838.03	0.10	0.01	0.31	0.27	0.02	0.87	0.32	0.01	1.16	0.59	0.04	1.89
	500-999	728.08	71.21	2293.34	0.13	0.01	0.39	0.34	0.03	1.08	0.42	0.02	1.50	0.76	0.06	2.43
	1,000-3,299	4567.79	492.30	14106.59	0.81	0.09	2.43	2.15	0.23	6.65	2.70	0.13	9.48	4.86	0.44	15.12
	3,300-9,999	13944.68	1590.45	41861.42	2.54	0.31	7.36	6.58	0.75	19.75	8.49	0.43	29.11	15.07	1.47	45.58
	10,000-49,999	26176.83	3171.20	78276.97	4.90	0.65	13.86	14.40	1.74	43.05	19.27	1.07	65.92	33.66	3.46	101.78
	50,000-99,999	19688.31	2542.68	56789.31	3.79	0.54	10.32	11.80	1.52	34.05	16.34	0.97	54.96	28.15	3.10	82.77
	100,000-999,999	92438.57	12564.19	251576.16	18.89	2.83	48.03	57.78	7.85	157.24	85.10	4.71	279.34	142.88	14.96	407.40
	1,000,000+	241595.12	44959.77	510817.51	59.40	11.35	122.35	151.00	28.10	319.27	267.93	18.17	807.61	418.93	53.55	1083.31
	All	399799.46	66646.20	949132.24	90.56	16.01	203.71	244.36	40.99	576.53	400.63	25.54	1248.55	645.00	78.00	1729.76

Exhibit C.5c
Cases Avoided and Benefits Annualized at 7 Percent (Based on Enhanced Cost of Illness), ICRSSL Data Set

		Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Size Category	Mean A	Lower (5th %ile) B	Upper (95th %ile) C	Mean D	Lower (5th %ile) E	Upper (95th %ile) F	Mean G	Lower (5th %ile) H	Upper (95th %ile) I	Mean J	Lower (5th %ile) K	Upper (95th %ile) L	Mean M	Lower (5th %ile) N	Upper (95th %ile) O
Alternative A1																
Filtered and Unfiltered	<100	86.00	7.75	259.15	0.01	0.00	0.04	0.04	0.00	0.12	0.05	0.00	0.17	0.09	0.01	0.29
	100-499	523.66	50.90	1529.30	0.09	0.01	0.26	0.25	0.02	0.72	0.29	0.01	1.07	0.54	0.04	1.77
	500-999	679.13	71.34	1911.71	0.12	0.01	0.32	0.32	0.03	0.90	0.38	0.02	1.39	0.70	0.06	2.28
	1,000-3,299	4218.60	470.81	11658.34	0.73	0.09	1.98	1.99	0.22	5.50	2.42	0.11	8.75	4.41	0.38	14.09
	3,300-9,999	12618.01	1493.70	34320.17	2.22	0.28	5.91	5.95	0.70	16.19	7.40	0.36	26.31	13.35	1.20	41.91
	10,000-49,999	23822.04	2942.95	65487.42	4.26	0.56	11.40	13.10	1.62	36.02	16.71	0.88	58.92	29.81	2.92	92.78
	50,000-99,999	17421.22	2232.76	47050.11	3.19	0.43	8.32	10.45	1.34	28.21	13.68	0.75	47.58	24.12	2.47	73.73
	100,000-999,999	78814.79	10437.25	208694.02	15.10	2.15	38.45	49.26	6.52	130.44	67.76	3.52	230.39	117.02	11.46	349.62
	1,000,000+	154808.39	27705.49	337935.19	36.66	6.80	77.61	96.76	17.32	211.21	165.17	10.92	504.39	261.93	32.40	695.66
	All	292991.84	45926.15	702368.65	62.37	10.45	143.22	178.11	28.05	425.43	273.85	16.68	877.27	451.97	51.36	1257.69
Alternative A2																
Filtered and Unfiltered	<100	63.97	5.58	194.58	0.01	0.00	0.03	0.03	0.00	0.09	0.04	0.00	0.13	0.07	0.00	0.22
	100-499	391.00	37.66	1167.01	0.07	0.01	0.20	0.18	0.02	0.55	0.22	0.01	0.80	0.40	0.03	1.32
	500-999	508.04	53.52	1459.18	0.09	0.01	0.25	0.24	0.03	0.69	0.29	0.01	1.05	0.53	0.04	1.72
	1,000-3,299	3187.64	356.45	8967.36	0.56	0.07	1.53	1.50	0.17	4.23	1.86	0.09	6.67	3.36	0.29	10.70
	3,300-9,999	9654.49	1162.84	26536.18	1.73	0.22	4.59	4.55	0.55	12.52	5.77	0.29	20.45	10.32	0.96	32.26
	10,000-49,999	17884.34	2273.40	50631.27	3.28	0.44	8.90	9.84	1.25	27.85	12.86	0.71	44.86	22.70	2.30	69.60
	50,000-99,999	13287.31	1755.93	36565.86	2.50	0.35	6.56	7.97	1.05	21.92	10.75	0.62	36.82	18.72	2.00	55.96
	100,000-999,999	61824.24	8366.57	159730.63	12.29	1.81	30.21	38.64	5.23	99.83	55.18	3.01	182.94	93.82	9.48	274.94
	1,000,000+	143352.04	26275.36	303198.54	34.76	6.57	72.02	89.60	16.42	189.50	156.69	10.58	475.43	246.29	31.18	642.09
	All	250153.08	40611.88	578528.26	55.28	9.55	122.64	152.55	24.91	351.43	243.65	15.49	764.49	396.20	46.53	1086.42
Alternative A3 - Preferred																
Filtered and Unfiltered	<100	48.41	3.93	150.55	0.01	0.00	0.03	0.02	0.00	0.07	0.03	0.00	0.10	0.05	0.00	0.17
	100-499	297.47	26.66	892.46	0.05	0.00	0.15	0.14	0.01	0.42	0.17	0.01	0.61	0.31	0.02	1.02
	500-999	388.02	38.99	1135.70	0.07	0.01	0.19	0.18	0.02	0.54	0.22	0.01	0.81	0.41	0.03	1.31
	1,000-3,299	2464.79	276.20	7038.66	0.44	0.05	1.21	1.16	0.13	3.32	1.46	0.07	5.20	2.62	0.23	8.28
	3,300-9,999	7576.97	921.64	20947.38	1.39	0.18	3.67	3.57	0.43	9.88	4.63	0.24	16.19	8.20	0.78	25.37
	10,000-49,999	15369.53	1962.28	43357.99	2.87	0.39	7.73	8.45	1.08	23.85	11.23	0.64	38.77	19.69	2.03	60.13
	50,000-99,999	11536.49	1527.72	31619.61	2.21	0.31	5.75	6.92	0.92	18.96	9.51	0.57	32.18	16.42	1.79	49.09
	100,000-999,999	54582.53	7545.69	138635.78	11.09	1.67	26.77	34.11	4.72	86.65	49.83	2.80	164.37	83.94	8.76	243.19
	1,000,000+	138465.93	25761.80	288235.70	33.95	6.47	69.48	86.54	16.10	180.15	153.08	10.43	464.09	239.62	30.65	619.74
	All	230730.13	38281.04	521924.61	52.07	9.16	112.80	141.11	23.57	317.81	230.15	14.88	716.14	371.26	44.56	1005.17
Alternative A4																
Filtered and Unfiltered	<100	35.61	2.77	114.19	0.01	0.00	0.02	0.02	0.00	0.05	0.02	0.00	0.07	0.04	0.00	0.12
	100-499	220.59	20.02	677.31	0.04	0.00	0.11	0.10	0.01	0.32	0.13	0.01	0.46	0.23	0.02	0.76
	500-999	288.91	29.31	848.72	0.05	0.01	0.15	0.14	0.01	0.40	0.17	0.01	0.61	0.30	0.03	0.97
	1,000-3,299	1868.08	211.34	5285.57	0.34	0.04	0.92	0.88	0.10	2.49	1.13	0.06	3.99	2.01	0.19	6.27
	3,300-9,999	5862.18	712.23	15981.82	1.10	0.15	2.87	2.77	0.34	7.54	3.68	0.21	12.67	6.45	0.65	19.48
	10,000-49,999	10655.08	1379.18	30256.13	2.09	0.29	5.52	5.86	0.76	16.64	8.19	0.51	27.37	14.05	1.57	41.48
	50,000-99,999	8254.34	1133.26	22392.13	1.67	0.25	4.20	4.95	0.68	13.43	7.18	0.47	23.55	12.13	1.44	34.72
	100,000-999,999	41242.63	6196.97	100485.59	8.88	1.44	20.42	25.78	3.87	62.80	39.95	2.41	127.71	65.72	7.34	184.29
	1,000,000+	129464.78	24702.01	263960.78	32.47	6.30	65.41	80.92	15.44	164.98	146.42	10.12	439.78	227.34	29.61	582.52
	All	197892.20	34571.95	431262.95	46.64	8.56	97.54	121.41	21.32	263.08	206.86	13.94	630.23	328.27	41.28	867.05

Exhibit C.5d
Cases Avoided and Benefits Annualized at 7 Percent (Based on Traditional Cost of Illness), ICR Data Set

		Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Size Category	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Alternative A1																
Filtered and Unfiltered	<100	325.12	27.86	1031.82	0.05	0.00	0.17	0.05	0.00	0.14	0.18	0.01	0.65	0.23	0.01	0.77
	100-499	1767.96	176.02	5156.90	0.30	0.03	0.86	0.25	0.02	0.72	0.99	0.04	3.47	1.24	0.08	4.05
	500-999	2196.90	237.03	6094.05	0.37	0.04	1.03	0.31	0.03	0.85	1.25	0.06	4.25	1.55	0.11	4.99
	1,000-3,299	13189.76	1514.30	35442.15	2.28	0.27	6.04	1.85	0.21	4.96	7.62	0.38	25.44	9.46	0.74	29.65
	3,300-9,999	39029.09	4675.44	103357.81	6.87	0.86	17.92	5.46	0.65	14.47	23.00	1.21	75.97	28.46	2.33	87.39
	10,000-49,999	79199.15	9458.58	214320.22	14.18	1.79	37.55	12.98	1.55	35.13	55.77	3.04	185.47	68.75	5.73	216.26
	50,000-99,999	57812.83	7165.92	154332.93	10.57	1.41	27.48	10.36	1.28	27.64	45.57	2.62	150.28	55.93	4.89	173.60
	100,000-999,999	261817.81	32900.33	677892.83	50.15	6.90	125.37	48.94	6.15	126.73	226.02	12.53	739.00	274.96	23.16	839.86
	1,000,000+	534615.61	94112.54	1159827.15	126.60	23.19	266.17	99.94	17.59	216.82	571.06	37.97	1748.43	671.00	66.10	1917.54
	All	989954.23	151965.26	2347055.39	211.38	34.84	480.39	180.14	27.81	425.80	931.45	58.15	2922.68	1111.59	105.03	3257.31
Alternative A2																
Filtered and Unfiltered	<100	319.39	27.10	1014.73	0.05	0.00	0.17	0.04	0.00	0.14	0.18	0.01	0.64	0.22	0.01	0.76
	100-499	1733.29	171.10	5095.94	0.29	0.03	0.85	0.24	0.02	0.71	0.97	0.04	3.41	1.22	0.08	3.97
	500-999	2140.11	230.21	5933.73	0.36	0.04	1.00	0.30	0.03	0.83	1.22	0.06	4.15	1.52	0.11	4.85
	1,000-3,299	12847.44	1473.04	34566.55	2.22	0.26	5.90	1.80	0.21	4.84	7.43	0.37	24.81	9.23	0.72	28.78
	3,300-9,999	38044.97	4557.49	100971.74	6.71	0.84	17.52	5.33	0.64	14.14	22.46	1.18	74.17	27.78	2.29	85.25
	10,000-49,999	77177.93	9254.65	208185.56	13.84	1.76	36.57	12.65	1.52	34.12	54.46	2.97	181.05	67.11	5.62	210.85
	50,000-99,999	56405.61	7026.79	149991.86	10.34	1.38	26.73	10.10	1.26	26.87	44.57	2.58	146.73	54.68	4.78	168.88
	100,000-999,999	255978.43	32308.03	661218.02	49.19	6.80	122.49	47.85	6.04	123.61	221.69	12.36	722.81	269.54	22.81	820.89
	1,000,000+	530678.56	93635.29	1150006.60	125.95	23.12	264.43	99.21	17.50	214.98	568.15	37.86	1739.65	667.35	65.90	1903.31
	All	975325.72	150295.25	2307247.28	208.95	34.59	473.76	177.52	27.50	418.76	921.12	57.72	2884.49	1098.64	104.28	3220.14
Alternative A3 - Preferred																
Filtered and Unfiltered	<100	309.47	26.06	981.00	0.05	0.00	0.16	0.04	0.00	0.14	0.17	0.01	0.62	0.22	0.01	0.73
	100-499	1673.63	164.23	4927.86	0.28	0.03	0.82	0.23	0.02	0.69	0.94	0.04	3.30	1.17	0.08	3.84
	500-999	2064.02	222.06	5723.13	0.35	0.04	0.96	0.29	0.03	0.80	1.17	0.05	4.00	1.46	0.11	4.68
	1,000-3,299	12389.02	1425.38	33296.63	2.14	0.26	5.70	1.73	0.20	4.66	7.18	0.36	23.92	8.91	0.70	27.86
	3,300-9,999	36727.33	4420.72	97338.89	6.49	0.82	16.90	5.14	0.62	13.63	21.73	1.15	71.74	26.87	2.22	82.55
	10,000-49,999	75872.19	9141.26	204711.07	13.63	1.73	35.94	12.44	1.50	33.55	53.62	2.93	178.22	66.05	5.53	207.48
	50,000-99,999	55496.55	6925.94	147408.91	10.19	1.37	26.30	9.94	1.24	26.40	43.93	2.56	144.45	53.87	4.74	166.08
	100,000-999,999	251900.25	31918.97	649104.43	48.51	6.73	120.62	47.09	5.97	121.34	218.67	12.22	712.81	265.76	22.59	809.67
	1,000,000+	527927.57	93327.35	1141902.96	125.49	23.07	263.18	98.69	17.45	213.47	566.11	37.76	1729.85	664.80	65.75	1897.94
	All	964360.04	149240.82	2277366.81	207.14	34.41	468.44	175.60	27.31	413.19	913.52	57.41	2856.42	1089.13	103.74	3194.64
Alternative A4																
Filtered and Unfiltered	<100	270.15	22.93	850.18	0.05	0.00	0.14	0.04	0.00	0.12	0.15	0.01	0.55	0.19	0.01	0.64
	100-499	1445.35	145.37	4187.44	0.24	0.03	0.70	0.20	0.02	0.59	0.81	0.04	2.84	1.02	0.07	3.31
	500-999	1770.08	197.09	4832.42	0.30	0.03	0.82	0.25	0.03	0.68	1.01	0.05	3.40	1.26	0.10	3.98
	1,000-3,299	10634.22	1285.03	28183.78	1.85	0.23	4.84	1.49	0.18	3.95	6.21	0.33	20.54	7.70	0.63	23.68
	3,300-9,999	31698.05	4002.05	82425.38	5.66	0.75	14.42	4.44	0.56	11.54	18.95	1.05	61.97	23.39	2.04	71.18
	10,000-49,999	68037.66	8293.10	181324.07	12.33	1.61	32.00	11.15	1.36	29.72	48.52	2.74	159.95	59.67	5.13	185.29
	50,000-99,999	50043.66	6380.31	130899.24	9.29	1.29	23.55	8.96	1.14	23.45	40.04	2.40	130.41	49.01	4.39	149.52
	100,000-999,999	227342.62	29206.04	573203.86	44.45	6.28	108.03	42.50	5.46	107.16	200.44	11.51	647.54	242.94	21.41	738.03
	1,000,000+	511258.27	91578.02	1092712.44	122.73	22.79	254.52	95.57	17.12	204.27	553.74	37.25	1679.27	649.31	64.66	1853.30
	All	902500.06	143230.98	2088992.85	196.90	33.32	437.40	164.61	26.29	379.48	869.87	55.85	2702.74	1034.47	100.46	3000.97

Exhibit C.5e
Cases Avoided and Benefits Annualized at 7 Percent (Based on Traditional Cost of Illness), ICRSSM Data Set

		Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Size Category	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Alternative A1																
Filtered and Unfiltered	<100	153.72	12.68	494.33	0.03	0.00	0.08	0.02	0.00	0.07	0.09	0.00	0.31	0.11	0.01	0.37
	100-499	917.76	80.98	2870.49	0.15	0.01	0.48	0.13	0.01	0.40	0.51	0.02	1.85	0.64	0.04	2.20
	500-999	1184.12	108.55	3641.33	0.20	0.02	0.61	0.17	0.02	0.51	0.67	0.03	2.42	0.84	0.05	2.84
	1,000-3,299	7313.58	720.97	22096.30	1.26	0.13	3.75	1.02	0.10	3.09	4.22	0.19	14.98	5.24	0.35	17.53
	3,300-9,999	21835.44	2267.08	64761.19	3.84	0.43	11.11	3.06	0.32	9.07	12.84	0.60	45.24	15.90	1.13	52.40
	10,000-49,999	41943.16	4787.94	125594.73	7.51	0.92	21.76	6.87	0.78	20.59	29.49	1.48	102.81	36.37	2.74	119.94
	50,000-99,999	30664.65	3668.48	89801.84	5.61	0.73	15.83	5.49	0.66	16.09	24.14	1.27	82.90	29.63	2.34	96.15
	100,000-999,999	137877.11	17338.15	382255.41	26.41	3.60	70.07	25.77	3.24	71.46	118.82	6.13	404.68	144.60	11.05	462.06
	1,000,000+	272260.35	48252.73	600830.54	64.47	11.92	137.44	50.90	9.02	112.32	290.68	19.05	893.38	341.58	31.87	989.46
	All	514149.89	78383.19	1285283.18	109.49	18.08	259.27	93.44	14.35	232.27	481.47	28.93	1541.36	574.90	50.38	1739.30
Alternative A2																
Filtered and Unfiltered	<100	134.29	10.94	442.10	0.02	0.00	0.07	0.02	0.00	0.06	0.07	0.00	0.28	0.09	0.01	0.33
	100-499	800.81	70.88	2537.17	0.13	0.01	0.42	0.11	0.01	0.36	0.45	0.02	1.62	0.56	0.03	1.94
	500-999	1031.39	95.73	3190.84	0.18	0.02	0.54	0.14	0.01	0.45	0.59	0.02	2.13	0.73	0.05	2.50
	1,000-3,299	6393.25	641.76	19469.25	1.11	0.12	3.31	0.90	0.09	2.73	3.71	0.17	13.17	4.60	0.31	15.46
	3,300-9,999	19189.96	2035.63	57212.10	3.41	0.39	9.87	2.69	0.29	8.01	11.39	0.55	39.90	14.08	1.03	46.40
	10,000-49,999	36675.29	4245.01	111033.52	6.64	0.83	19.38	6.01	0.70	18.20	26.08	1.33	90.34	32.09	2.47	105.48
	50,000-99,999	26997.07	3294.88	79731.25	5.00	0.67	14.10	4.84	0.59	14.28	21.53	1.18	73.67	26.37	2.15	85.01
	100,000-999,999	122735.17	15832.87	339171.04	23.90	3.34	62.90	22.94	2.96	63.40	107.59	5.66	361.67	130.54	10.18	412.28
	1,000,000+	262050.44	47122.98	571441.58	62.78	11.73	132.19	48.99	8.81	106.83	283.11	18.74	864.91	332.10	31.30	958.15
	All	476007.68	74499.02	1173586.21	103.18	17.34	240.78	86.64	13.66	212.73	454.53	27.74	1442.97	541.16	48.29	1622.73
Alternative A3 - Preferred																
Filtered and Unfiltered	<100	116.85	9.29	394.57	0.02	0.00	0.07	0.02	0.00	0.06	0.06	0.00	0.24	0.08	0.00	0.29
	100-499	695.94	61.19	2257.33	0.12	0.01	0.38	0.10	0.01	0.32	0.39	0.02	1.42	0.49	0.03	1.70
	500-999	896.50	84.52	2824.75	0.15	0.02	0.48	0.13	0.01	0.40	0.51	0.02	1.85	0.64	0.04	2.18
	1,000-3,299	5580.90	573.42	17254.70	0.98	0.11	2.94	0.78	0.08	2.42	3.26	0.15	11.56	4.04	0.27	13.58
	3,300-9,999	16855.24	1826.54	50907.39	3.02	0.35	8.85	2.36	0.26	7.13	10.10	0.49	35.08	12.46	0.92	41.06
	10,000-49,999	34034.00	3966.43	102346.12	6.20	0.79	17.93	5.58	0.65	16.78	24.37	1.27	84.10	29.95	2.33	98.09
	50,000-99,999	25158.23	3109.94	73758.06	4.70	0.64	13.20	4.51	0.56	13.21	20.23	1.13	69.06	24.74	2.05	79.50
	100,000-999,999	115001.21	14853.46	315512.31	22.62	3.19	58.97	21.50	2.78	58.98	101.87	5.40	340.35	123.37	9.71	387.92
	1,000,000+	256830.89	46512.91	555816.25	61.92	11.63	129.67	48.01	8.70	103.90	279.25	18.59	850.97	327.26	30.98	941.56
	All	455169.76	72128.02	1112374.31	99.73	16.93	230.35	82.98	13.20	201.70	440.05	27.13	1391.45	523.02	46.98	1559.02
Alternative A4																
Filtered and Unfiltered	<100	95.00	7.51	324.69	0.02	0.00	0.05	0.01	0.00	0.05	0.05	0.00	0.20	0.07	0.00	0.23
	100-499	565.09	51.89	1838.03	0.10	0.01	0.31	0.08	0.01	0.26	0.32	0.01	1.16	0.40	0.02	1.37
	500-999	728.08	71.21	2293.34	0.13	0.01	0.39	0.10	0.01	0.32	0.42	0.02	1.50	0.52	0.03	1.77
	1,000-3,299	4567.79	492.30	14106.59	0.81	0.09	2.43	0.64	0.07	1.98	2.70	0.13	9.48	3.34	0.24	11.13
	3,300-9,999	13944.68	1590.45	41861.42	2.54	0.31	7.36	1.95	0.22	5.86	8.49	0.43	29.11	10.45	0.81	33.98
	10,000-49,999	26176.83	3171.20	78276.97	4.90	0.65	13.86	4.29	0.52	12.83	19.27	1.07	65.92	23.56	1.93	75.78
	50,000-99,999	19688.31	2542.68	56789.31	3.79	0.54	10.32	3.53	0.46	10.17	16.34	0.97	54.96	19.87	1.75	62.83
	100,000-999,999	92438.57	12564.19	251576.16	18.89	2.83	48.03	17.28	2.35	47.03	85.10	4.71	279.34	102.38	8.46	315.71
	1,000,000+	241595.12	44959.77	510817.51	59.40	11.35	122.35	45.16	8.40	95.49	267.93	18.17	807.61	313.10	30.07	888.53
	All	399799.46	66646.20	949132.24	90.56	16.01	203.71	73.05	12.26	172.33	400.63	25.54	1248.55	473.68	43.97	1386.37

Exhibit C.5f
Cases Avoided and Benefits Annualized at 7 Percent (Based on Traditional Cost of Illness), ICRSSL Data Set

		Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
	Size Category	Mean A	Lower (5th %ile) B	Upper (95th %ile) C	Mean D	Lower (5th %ile) E	Upper (95th %ile) F	Mean G	Lower (5th %ile) H	Upper (95th %ile) I	Mean J	Lower (5th %ile) K	Upper (95th %ile) L	Mean M	Lower (5th %ile) N	Upper (95th %ile) O
Alternative A1																
Filtered and Unfiltered	<100	86.00	7.75	259.15	0.01	0.00	0.04	0.01	0.00	0.04	0.05	0.00	0.17	0.06	0.00	0.21
	100-499	523.66	50.90	1529.30	0.09	0.01	0.26	0.07	0.01	0.21	0.29	0.01	1.07	0.37	0.02	1.26
	500-999	679.13	71.34	1911.71	0.12	0.01	0.32	0.10	0.01	0.27	0.38	0.02	1.39	0.48	0.03	1.64
	1,000-3,299	4218.60	470.81	11658.34	0.73	0.09	1.98	0.59	0.07	1.63	2.42	0.11	8.75	3.01	0.20	10.19
	3,300-9,999	12618.01	1493.70	34320.17	2.22	0.28	5.91	1.77	0.21	4.81	7.40	0.36	26.31	9.16	0.66	30.64
	10,000-49,999	23822.04	2942.95	65487.42	4.26	0.56	11.40	3.90	0.48	10.73	16.71	0.88	58.92	20.61	1.56	68.58
	50,000-99,999	17421.22	2232.76	47050.11	3.19	0.43	8.32	3.12	0.40	8.43	13.68	0.75	47.58	16.80	1.34	55.17
	100,000-999,999	78814.79	10437.25	208694.02	15.10	2.15	38.45	14.73	1.95	39.01	67.76	3.52	230.39	82.49	6.26	264.35
	1,000,000+	154808.39	27705.49	337935.19	36.66	6.80	77.61	28.94	5.18	63.17	165.17	10.92	504.39	194.11	18.41	558.59
	All	292991.84	45926.15	702368.65	62.37	10.45	143.22	53.24	8.38	127.15	273.85	16.68	877.27	327.09	28.52	989.65
Alternative A2																
Filtered and Unfiltered	<100	63.97	5.58	194.58	0.01	0.00	0.03	0.01	0.00	0.03	0.04	0.00	0.13	0.04	0.00	0.16
	100-499	391.00	37.66	1167.01	0.07	0.01	0.20	0.05	0.01	0.16	0.22	0.01	0.80	0.27	0.02	0.95
	500-999	508.04	53.52	1459.18	0.09	0.01	0.25	0.07	0.01	0.20	0.29	0.01	1.05	0.36	0.02	1.23
	1,000-3,299	3187.64	356.45	8967.36	0.56	0.07	1.53	0.45	0.05	1.26	1.86	0.09	6.67	2.30	0.16	7.77
	3,300-9,999	9654.49	1162.84	26536.18	1.73	0.22	4.59	1.35	0.16	3.72	5.77	0.29	20.45	7.12	0.53	23.70
	10,000-49,999	17884.34	2273.40	50631.27	3.28	0.44	8.90	2.93	0.37	8.30	12.86	0.71	44.86	15.79	1.27	51.81
	50,000-99,999	13287.31	1755.93	36565.86	2.50	0.35	6.56	2.38	0.31	6.55	10.75	0.62	36.82	13.13	1.12	42.33
	100,000-999,999	61824.24	8366.57	159730.63	12.29	1.81	30.21	11.56	1.56	29.86	55.18	3.01	182.94	66.74	5.29	209.52
	1,000,000+	143352.04	26275.36	303198.54	34.76	6.57	72.02	26.80	4.91	56.68	156.69	10.58	475.43	183.49	17.69	523.27
	All	250153.08	40611.88	578528.26	55.28	9.55	122.64	45.60	7.45	105.04	243.65	15.49	764.49	289.25	26.22	864.28
Alternative A3 - Preferred																
Filtered and Unfiltered	<100	48.41	3.93	150.55	0.01	0.00	0.03	0.01	0.00	0.02	0.03	0.00	0.10	0.03	0.00	0.12
	100-499	297.47	26.66	892.46	0.05	0.00	0.15	0.04	0.00	0.12	0.17	0.01	0.61	0.21	0.01	0.73
	500-999	388.02	38.99	1135.70	0.07	0.01	0.19	0.05	0.01	0.16	0.22	0.01	0.81	0.28	0.02	0.96
	1,000-3,299	2464.79	276.20	7038.66	0.44	0.05	1.21	0.35	0.04	0.99	1.46	0.07	5.20	1.80	0.13	6.09
	3,300-9,999	7576.97	921.64	20947.38	1.39	0.18	3.67	1.06	0.13	2.93	4.63	0.24	16.19	5.69	0.44	18.74
	10,000-49,999	15369.53	1962.28	43357.99	2.87	0.39	7.73	2.52	0.32	7.11	11.23	0.64	38.77	13.75	1.13	44.43
	50,000-99,999	11536.49	1527.72	31619.61	2.21	0.31	5.75	2.07	0.27	5.66	9.51	0.57	32.18	11.57	1.01	36.90
	100,000-999,999	54582.53	7545.69	138635.78	11.09	1.67	26.77	10.20	1.41	25.92	49.83	2.80	164.37	60.03	4.89	186.41
	1,000,000+	138465.93	25761.80	288235.70	33.95	6.47	69.48	25.88	4.82	53.88	153.08	10.43	464.09	178.97	17.39	508.00
	All	230730.13	38281.04	521924.61	52.07	9.16	112.80	42.18	7.05	95.00	230.15	14.88	716.14	272.33	25.28	802.43
Alternative A4																
Filtered and Unfiltered	<100	35.61	2.77	114.19	0.01	0.00	0.02	0.00	0.00	0.02	0.02	0.00	0.07	0.02	0.00	0.09
	100-499	220.59	20.02	677.31	0.04	0.00	0.11	0.03	0.00	0.09	0.13	0.01	0.46	0.16	0.01	0.55
	500-999	288.91	29.31	848.72	0.05	0.01	0.15	0.04	0.00	0.12	0.17	0.01	0.61	0.21	0.01	0.71
	1,000-3,299	1868.08	211.34	5285.57	0.34	0.04	0.92	0.26	0.03	0.74	1.13	0.06	3.99	1.39	0.10	4.64
	3,300-9,999	5862.18	712.23	15981.82	1.10	0.15	2.87	0.82	0.10	2.24	3.68	0.21	12.67	4.50	0.37	14.57
	10,000-49,999	10655.08	1379.18	30256.13	2.09	0.29	5.52	1.75	0.23	4.96	8.19	0.51	27.37	9.93	0.89	31.20
	50,000-99,999	8254.34	1133.26	22392.13	1.67	0.25	4.20	1.48	0.20	4.01	7.18	0.47	23.55	8.66	0.82	26.78
	100,000-999,999	41242.63	6196.97	100485.59	8.88	1.44	20.42	7.71	1.16	18.78	39.95	2.41	127.71	47.66	4.15	144.01
	1,000,000+	129464.78	24702.01	263960.78	32.47	6.30	65.41	24.20	4.62	49.34	146.42	10.12	439.78	170.62	16.86	481.76
	All	197892.20	34571.95	431262.95	46.64	8.56	97.54	36.30	6.37	78.64	206.86	13.94	630.23	243.16	23.46	699.64

Exhibit C.6a
Cases Avoided and Benefits Annualized at 3 Percent (Based on Enhanced Cost of Illness)
Filtered Systems Only

Data Set	Rule Alternative	Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
		Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
All System Sizes																
ICR	A1	489,663	46,414	1,399,153	81	8	232	$ 364	$ 34	$ 1,041	$ 430	$ 19	$ 1,495	$ 794	$ 69	$ 2,452
	A2	475,035	44,933	1,355,090	79	7	224	$ 353	$ 33	$ 1,011	$ 417	$ 18	$ 1,451	$ 771	$ 66	$ 2,368
	A3 - Preferred alt.	464,069	43,741	1,324,897	77	7	219	$ 345	$ 32	$ 986	$ 408	$ 18	$ 1,420	$ 753	$ 65	$ 2,312
	A4	402,209	38,061	1,131,268	67	6	187	$ 299	$ 28	$ 842	$ 354	$ 16	$ 1,230	$ 653	$ 57	$ 1,993
ICRSSL	A1	146,871	15,412	425,900	24	3	70	$ 109	$ 11	$ 317	$ 128	$ 5	$ 471	$ 237	$ 18	$ 771
	A2	104,032	10,355	308,218	17	2	51	$ 77	$ 8	$ 229	$ 91	$ 3	$ 336	$ 168	$ 12	$ 554
	A3 - Preferred alt.	84,609	7,778	254,515	14	1	42	$ 63	$ 6	$ 189	$ 74	$ 3	$ 274	$ 137	$ 10	$ 460
	A4	51,772	4,343	165,126	9	1	27	$ 38	$ 3	$ 122	$ 45	$ 2	$ 169	$ 83	$ 6	$ 279
ICRSSM	A1	257,406	24,126	800,634	43	4	133	$ 191	$ 18	$ 596	$ 225	$ 9	$ 830	$ 416	$ 32	$ 1,354
	A2	219,264	20,214	690,946	36	3	114	$ 163	$ 15	$ 513	$ 192	$ 7	$ 709	$ 355	$ 27	$ 1,157
	A3 - Preferred alt.	198,426	17,823	631,762	33	3	105	$ 148	$ 13	$ 471	$ 174	$ 7	$ 645	$ 321	$ 24	$ 1,058
	A4	143,056	12,192	472,527	24	2	78	$ 106	$ 9	$ 350	$ 125	$ 5	$ 465	$ 231	$ 17	$ 756
Small Systems																
ICR	A1	51,045	5,331	140,126	8	1	23	$ 32	$ 3	$ 88	$ 37	$ 2	$ 128	$ 69	$ 6	$ 209
	A2	49,622	5,148	136,514	8	1	23	$ 31	$ 3	$ 85	$ 36	$ 2	$ 125	$ 67	$ 6	$ 202
	A3 - Preferred alt.	47,700	4,936	131,541	8	1	22	$ 30	$ 3	$ 82	$ 35	$ 2	$ 119	$ 65	$ 6	$ 194
	A4	40,354	4,296	110,156	7	1	18	$ 25	$ 3	$ 69	$ 29	$ 1	$ 100	$ 55	$ 5	$ 161
ICRSSL	A1	16,365	1,559	46,987	3	0	8	$ 10	$ 1	$ 29	$ 12	$ 0	$ 44	$ 22	$ 2	$ 73
	A2	12,045	1,092	35,440	2	0	6	$ 8	$ 1	$ 22	$ 9	$ 0	$ 33	$ 16	$ 1	$ 54
	A3 - Preferred alt.	9,016	716	27,348	1	0	5	$ 6	$ 0	$ 17	$ 7	$ 0	$ 25	$ 12	$ 1	$ 41
	A4	6,515	469	20,091	1	0	3	$ 4	$ 0	$ 13	$ 5	$ 0	$ 18	$ 9	$ 1	$ 29
ICRSSM	A1	28,357	2,328	88,448	5	0	15	$ 18	$ 1	$ 55	$ 21	$ 1	$ 75	$ 38	$ 3	$ 124
	A2	24,502	2,013	77,374	4	0	13	$ 15	$ 1	$ 48	$ 18	$ 1	$ 66	$ 33	$ 2	$ 108
	A3 - Preferred alt.	21,098	1,732	68,281	3	0	11	$ 13	$ 1	$ 43	$ 15	$ 1	$ 57	$ 29	$ 2	$ 93
	A4	16,853	1,406	54,624	3	0	9	$ 11	$ 1	$ 34	$ 12	$ 0	$ 45	$ 23	$ 2	$ 75
Large Systems																
ICR	A1	438,618	40,437	1,258,180	73	7	208	$ 332	$ 31	$ 954	$ 393	$ 17	$ 1,375	$ 725	$ 62	$ 2,241
	A2	425,413	39,214	1,219,629	70	6	202	$ 322	$ 30	$ 925	$ 381	$ 17	$ 1,330	$ 703	$ 60	$ 2,172
	A3 - Preferred alt.	416,369	38,541	1,190,973	69	6	197	$ 316	$ 29	$ 903	$ 373	$ 16	$ 1,305	$ 688	$ 59	$ 2,125
	A4	361,855	34,164	1,021,604	60	6	169	$ 274	$ 26	$ 775	$ 324	$ 14	$ 1,130	$ 598	$ 51	$ 1,830
ICRSSL	A1	130,506	13,626	379,940	22	2	63	$ 99	$ 10	$ 288	$ 116	$ 5	$ 429	$ 215	$ 17	$ 700
	A2	91,987	9,056	273,672	15	1	45	$ 70	$ 7	$ 207	$ 82	$ 3	$ 304	$ 152	$ 11	$ 504
	A3 - Preferred alt.	75,594	7,074	228,200	13	1	38	$ 57	$ 5	$ 173	$ 67	$ 3	$ 250	$ 125	$ 9	$ 419
	A4	45,256	3,869	144,918	7	1	24	$ 34	$ 3	$ 110	$ 40	$ 1	$ 151	$ 75	$ 5	$ 250
ICRSSM	A1	229,049	21,608	717,696	38	4	119	$ 174	$ 16	$ 544	$ 205	$ 8	$ 754	$ 378	$ 29	$ 1,232
	A2	194,762	18,061	615,892	32	3	102	$ 148	$ 14	$ 466	$ 174	$ 7	$ 645	$ 322	$ 24	$ 1,053
	A3 - Preferred alt.	177,328	16,067	570,363	29	3	94	$ 134	$ 12	$ 432	$ 158	$ 6	$ 587	$ 293	$ 22	$ 959
	A4	126,203	10,585	417,133	21	2	69	$ 96	$ 8	$ 316	$ 113	$ 4	$ 419	$ 208	$ 15	$ 683

Exhibit C.6b
Cases Avoided and Benefits Annualized at 3 Percent (Based on Best Estimate of Traditional Cost of Illness)
Filtered Systems Only

Data Set	Rule Alternative	Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
		Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
All System Sizes																
ICR	A1	489,663	46,414	1,399,153	81	8	232	$ 108	$ 10	$ 310	$ 430	$ 19	$ 1,495	$ 538	$ 37	$ 1,772
	A2	475,035	44,933	1,355,090	79	7	224	$ 105	$ 10	$ 301	$ 417	$ 18	$ 1,451	$ 522	$ 36	$ 1,720
	A3 - Preferred alt.	464,069	43,741	1,324,897	77	7	219	$ 103	$ 10	$ 294	$ 408	$ 18	$ 1,420	$ 510	$ 35	$ 1,683
	A4	402,209	38,061	1,131,268	67	6	187	$ 89	$ 8	$ 251	$ 354	$ 16	$ 1,230	$ 443	$ 31	$ 1,445
ICRSSL	A1	146,871	15,412	425,900	24	3	70	$ 32	$ 3	$ 94	$ 128	$ 5	$ 471	$ 160	$ 10	$ 555
	A2	104,032	10,355	308,218	17	2	51	$ 23	$ 2	$ 68	$ 91	$ 3	$ 336	$ 114	$ 7	$ 399
	A3 - Preferred alt.	84,609	7,778	254,515	14	1	42	$ 19	$ 2	$ 56	$ 74	$ 3	$ 274	$ 92	$ 5	$ 328
	A4	51,772	4,343	165,126	9	1	27	$ 11	$ 1	$ 36	$ 45	$ 2	$ 169	$ 56	$ 3	$ 200
ICRSSM	A1	257,406	24,126	800,634	43	4	133	$ 57	$ 5	$ 177	$ 225	$ 9	$ 830	$ 282	$ 17	$ 973
	A2	219,264	20,214	690,946	36	3	114	$ 48	$ 4	$ 153	$ 192	$ 7	$ 709	$ 240	$ 14	$ 834
	A3 - Preferred alt.	198,426	17,823	631,762	33	3	105	$ 44	$ 4	$ 140	$ 174	$ 7	$ 645	$ 218	$ 13	$ 759
	A4	143,056	12,192	472,527	24	2	78	$ 32	$ 3	$ 104	$ 125	$ 5	$ 465	$ 157	$ 9	$ 548
Small Systems																
ICR	A1	51,045	5,331	140,126	8	1	23	$ 9	$ 1	$ 26	$ 37	$ 2	$ 128	$ 47	$ 3	$ 151
	A2	49,622	5,148	136,514	8	1	23	$ 9	$ 1	$ 25	$ 36	$ 2	$ 125	$ 45	$ 3	$ 146
	A3 - Preferred alt.	47,700	4,936	131,541	8	1	22	$ 9	$ 1	$ 24	$ 35	$ 2	$ 119	$ 44	$ 3	$ 140
	A4	40,354	4,296	110,156	7	1	18	$ 7	$ 1	$ 20	$ 29	$ 1	$ 100	$ 37	$ 3	$ 117
ICRSSL	A1	16,365	1,559	46,987	3	0	8	$ 3	$ 0	$ 9	$ 12	$ 0	$ 44	$ 15	$ 1	$ 52
	A2	12,045	1,092	35,440	2	0	6	$ 2	$ 0	$ 7	$ 9	$ 0	$ 33	$ 11	$ 1	$ 39
	A3 - Preferred alt.	9,016	716	27,348	1	0	5	$ 2	$ 0	$ 5	$ 7	$ 0	$ 25	$ 8	$ 0	$ 29
	A4	6,515	469	20,091	1	0	3	$ 1	$ 0	$ 4	$ 5	$ 0	$ 18	$ 6	$ 0	$ 21
ICRSSM	A1	28,357	2,328	88,448	5	0	15	$ 5	$ 0	$ 16	$ 21	$ 1	$ 75	$ 26	$ 1	$ 89
	A2	24,502	2,013	77,374	4	0	13	$ 5	$ 0	$ 14	$ 18	$ 1	$ 66	$ 22	$ 1	$ 78
	A3 - Preferred alt.	21,098	1,732	68,281	3	0	11	$ 4	$ 0	$ 13	$ 15	$ 1	$ 57	$ 19	$ 1	$ 67
	A4	16,853	1,406	54,624	3	0	9	$ 3	$ 0	$ 10	$ 12	$ 0	$ 45	$ 15	$ 1	$ 54
Large Systems																
ICR	A1	438,618	40,437	1,258,180	73	7	208	$ 99	$ 9	$ 284	$ 393	$ 17	$ 1,375	$ 492	$ 34	$ 1,621
	A2	425,413	39,214	1,219,629	70	6	202	$ 96	$ 9	$ 275	$ 381	$ 17	$ 1,330	$ 477	$ 33	$ 1,577
	A3 - Preferred alt.	416,369	38,541	1,190,973	69	6	197	$ 94	$ 9	$ 269	$ 373	$ 16	$ 1,305	$ 467	$ 32	$ 1,544
	A4	361,855	34,164	1,021,604	60	6	169	$ 82	$ 8	$ 231	$ 324	$ 14	$ 1,130	$ 406	$ 28	$ 1,332
ICRSSL	A1	130,506	13,626	379,940	22	2	63	$ 29	$ 3	$ 86	$ 116	$ 5	$ 429	$ 146	$ 9	$ 504
	A2	91,987	9,056	273,672	15	1	45	$ 21	$ 2	$ 62	$ 82	$ 3	$ 304	$ 103	$ 6	$ 361
	A3 - Preferred alt.	75,594	7,074	228,200	13	1	38	$ 17	$ 2	$ 51	$ 67	$ 3	$ 250	$ 84	$ 5	$ 298
	A4	45,256	3,869	144,918	7	1	24	$ 10	$ 1	$ 33	$ 40	$ 1	$ 151	$ 50	$ 3	$ 180
ICRSSM	A1	229,049	21,608	717,696	38	4	119	$ 52	$ 5	$ 162	$ 205	$ 8	$ 754	$ 256	$ 15	$ 886
	A2	194,762	18,061	615,892	32	3	102	$ 44	$ 4	$ 139	$ 174	$ 7	$ 645	$ 218	$ 13	$ 757
	A3 - Preferred alt.	177,328	16,067	570,363	29	3	94	$ 40	$ 4	$ 129	$ 158	$ 6	$ 587	$ 198	$ 11	$ 692
	A4	126,203	10,585	417,133	21	2	69	$ 28	$ 2	$ 94	$ 113	$ 4	$ 419	$ 141	$ 8	$ 497

Exhibit C.7a
Cases Avoided and Benefits Annualized at 3 Percent (Based on Enhanced Cost of Illness)
Unfiltered Systems Only

Data Set	Rule Alternative	Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
		Mean	90 Percent Confidence Bound		Mean	90 Percent Confidence Bound		Mean	90 Percent Confidence Bound		Mean	90 Percent Confidence Bound		Mean	90 Percent Confidence Bound	
			Lower (5th %ile)	Upper (95th %ile)		Lower (5th %ile)	Upper (95th %ile)		Lower (5th %ile)	Upper (95th %ile)		Lower (5th %ile)	Upper (95th %ile)		Lower (5th %ile)	Upper (95th %ile)
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
All System Sizes																
ICR	A3 - Preferred alt.	500,291	101,149	982,116	130	26	256	$384	$78	$754	$716	$52	$2,137	$1,100	$151	$2,762
ICR SSL	A3 - Preferred alt.	146,121	29,556	286,785	38	8	75	$112	$23	$220	$209	$15	$624	$321	$44	$806
ICR SSM	A3 - Preferred alt.	256,744	51,932	503,915	67	14	131	$197	$40	$387	$368	$26	$1,096	$565	$77	$1,417
Small Systems																
ICR	A3 - Preferred alt.	5,464	1,115	11,030	1	0	3	$3	$1	$7	$6	$1	$18	$10	$2	$24
ICR SSL	A3 - Preferred alt.	1,760	359	3,553	0	0	1	$1	$0	$2	$2	$0	$6	$3	$1	$8
ICR SSM	A3 - Preferred alt.	3,048	622	6,153	1	0	2	$2	$0	$4	$4	$0	$10	$5	$1	$13
Large Systems																
ICR	A3 - Preferred alt.	494,828	99,931	971,931	129	26	253	$381	$77	$748	$710	$51	$2,118	$1,091	$149	$2,741
ICR SSL	A3 - Preferred alt.	144,361	29,151	283,486	38	8	74	$111	$22	$218	$207	$15	$618	$318	$43	$799
ICR SSM	A3 - Preferred alt.	253,696	51,229	498,186	66	13	130	$195	$39	$383	$364	$26	$1,086	$559	$76	$1,405

Exhibit C.7b
Cases Avoided and Benefits Annualized at 3 Percent (Based on Best Estimate of Traditional Cost of Illness)
Unfiltered Systems Only

Data Set	Rule Alternative	Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
		Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
All System Sizes																
ICR	A3 - Preferred alt.	500,291	101,149	982,116	130	26	256	$114	$23	$225	$716	$52	$2,137	$831	$87	$2,319
ICR SSL	A3 - Preferred alt.	146,121	29,556	286,785	38	8	75	$33	$7	$66	$209	$15	$624	$243	$25	$677
ICR SSM	A3 - Preferred alt.	256,744	51,932	503,915	67	14	131	$59	$12	$115	$368	$26	$1,096	$426	$45	$1,190
Small Systems																
ICR	A3 - Preferred alt.	5,464	1,115	11,030	1	0	3	$1	$0	$2	$6	$1	$18	$7	$1	$20
ICR SSL	A3 - Preferred alt.	1,760	359	3,553	0	0	1	$0	$0	$1	$2	$0	$6	$2	$0	$6
ICR SSM	A3 - Preferred alt.	3,048	622	6,153	1	0	2	$1	$0	$1	$4	$0	$10	$4	$1	$11
Large Systems																
ICR	A3 - Preferred alt.	494,828	99,931	971,931	129	26	253	$113	$23	$223	$710	$51	$2,118	$823	$86	$2,297
ICR SSL	A3 - Preferred alt.	144,361	29,151	283,486	38	8	74	$33	$7	$65	$207	$15	$618	$240	$25	$670
ICR SSM	A3 - Preferred alt.	253,696	51,229	498,186	66	13	130	$58	$12	$114	$364	$26	$1,086	$422	$44	$1,178

Exhibit C.8a
Cases Avoided and Benefits Annualized at 7 Percent (Based on Best Estimate of Enhanced Cost of Illness)
Filtered Systems Only

Data Set	Rule Alternative	Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
		Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
All System Sizes																
ICR	A1	489,663	46,414	1,399,153	81	8	232	$ 292	$ 28	$ 835	$ 347	$ 15	$ 1,206	$ 639	$ 55	$ 1,970
	A2	475,035	44,933	1,355,090	79	7	224	$ 283	$ 27	$ 810	$ 337	$ 15	$ 1,170	$ 620	$ 53	$ 1,904
	A3 - Preferred alt.	464,069	43,741	1,324,897	77	7	219	$ 277	$ 26	$ 790	$ 329	$ 14	$ 1,146	$ 606	$ 52	$ 1,862
	A4	402,209	38,061	1,131,268	67	6	187	$ 240	$ 23	$ 675	$ 286	$ 13	$ 994	$ 525	$ 45	$ 1,601
ICRSSL	A1	146,871	15,412	425,900	24	3	70	$ 87	$ 9	$ 254	$ 103	$ 4	$ 380	$ 191	$ 15	$ 620
	A2	104,032	10,355	308,218	17	2	51	$ 62	$ 6	$ 183	$ 73	$ 3	$ 271	$ 135	$ 10	$ 447
	A3 - Preferred alt.	84,609	7,778	254,515	14	1	42	$ 50	$ 5	$ 152	$ 60	$ 2	$ 222	$ 110	$ 8	$ 370
	A4	51,772	4,343	165,126	9	1	27	$ 31	$ 3	$ 98	$ 36	$ 1	$ 136	$ 67	$ 5	$ 225
ICRSSM	A1	257,406	24,126	800,634	43	4	133	$ 153	$ 14	$ 477	$ 182	$ 7	$ 669	$ 335	$ 26	$ 1,090
	A2	219,264	20,214	690,946	36	3	114	$ 130	$ 12	$ 411	$ 155	$ 6	$ 573	$ 285	$ 22	$ 930
	A3 - Preferred alt.	198,426	17,823	631,762	33	3	105	$ 118	$ 11	$ 377	$ 140	$ 5	$ 520	$ 258	$ 19	$ 851
	A4	143,056	12,192	472,527	24	2	78	$ 85	$ 7	$ 280	$ 101	$ 4	$ 376	$ 186	$ 13	$ 608
Small Systems																
ICR	A1	51,045	5,331	140,126	8	1	23	$ 24	$ 3	$ 66	$ 28	$ 1	$ 97	$ 52	$ 4	$ 158
	A2	49,622	5,148	136,514	8	1	23	$ 23	$ 2	$ 64	$ 27	$ 1	$ 94	$ 51	$ 4	$ 153
	A3 - Preferred alt.	47,700	4,936	131,541	8	1	22	$ 23	$ 2	$ 62	$ 26	$ 1	$ 91	$ 49	$ 4	$ 147
	A4	40,354	4,296	110,156	7	1	18	$ 19	$ 2	$ 52	$ 22	$ 1	$ 76	$ 41	$ 4	$ 122
ICRSSL	A1	16,365	1,559	46,987	3	0	8	$ 8	$ 1	$ 22	$ 9	$ 0	$ 33	$ 17	$ 1	$ 55
	A2	12,045	1,092	35,440	2	0	6	$ 6	$ 1	$ 17	$ 7	$ 0	$ 25	$ 12	$ 1	$ 41
	A3 - Preferred alt.	9,016	716	27,348	1	0	5	$ 4	$ 0	$ 13	$ 5	$ 0	$ 19	$ 9	$ 1	$ 31
	A4	6,515	469	20,091	1	0	3	$ 3	$ 0	$ 9	$ 4	$ 0	$ 14	$ 7	$ 0	$ 22
ICRSSM	A1	28,357	2,328	88,448	5	0	15	$ 13	$ 1	$ 42	$ 16	$ 1	$ 57	$ 29	$ 2	$ 94
	A2	24,502	2,013	77,374	4	0	13	$ 12	$ 1	$ 36	$ 14	$ 1	$ 50	$ 25	$ 2	$ 82
	A3 - Preferred alt.	21,098	1,732	68,281	3	0	11	$ 10	$ 1	$ 32	$ 12	$ 0	$ 43	$ 22	$ 1	$ 71
	A4	16,853	1,406	54,624	3	0	9	$ 8	$ 1	$ 26	$ 9	$ 0	$ 34	$ 17	$ 1	$ 56
Large Systems																
ICR	A1	438,618	40,437	1,258,180	73	7	208	$ 268	$ 25	$ 769	$ 319	$ 14	$ 1,112	$ 587	$ 50	$ 1,812
	A2	425,413	39,214	1,219,629	70	6	202	$ 260	$ 24	$ 745	$ 309	$ 13	$ 1,080	$ 569	$ 49	$ 1,758
	A3 - Preferred alt.	416,369	38,541	1,190,973	69	6	197	$ 254	$ 23	$ 727	$ 303	$ 13	$ 1,060	$ 557	$ 47	$ 1,719
	A4	361,855	34,164	1,021,604	60	6	169	$ 221	$ 21	$ 624	$ 263	$ 11	$ 916	$ 484	$ 41	$ 1,482
ICRSSL	A1	130,506	13,626	379,940	22	2	63	$ 80	$ 8	$ 232	$ 94	$ 4	$ 348	$ 174	$ 14	$ 567
	A2	91,987	9,056	273,672	15	1	45	$ 56	$ 6	$ 167	$ 66	$ 3	$ 247	$ 123	$ 9	$ 408
	A3 - Preferred alt.	75,594	7,074	228,200	13	1	38	$ 46	$ 4	$ 139	$ 55	$ 2	$ 203	$ 101	$ 7	$ 339
	A4	45,256	3,869	144,918	7	1	24	$ 28	$ 2	$ 88	$ 33	$ 1	$ 123	$ 60	$ 4	$ 203
ICRSSM	A1	229,049	21,608	717,696	38	4	119	$ 140	$ 13	$ 438	$ 166	$ 6	$ 612	$ 306	$ 24	$ 997
	A2	194,762	18,061	615,892	32	3	102	$ 119	$ 11	$ 376	$ 141	$ 5	$ 525	$ 260	$ 20	$ 851
	A3 - Preferred alt.	177,328	16,067	570,363	29	3	94	$ 108	$ 10	$ 348	$ 129	$ 5	$ 476	$ 237	$ 18	$ 776
	A4	126,203	10,585	417,133	21	2	69	$ 77	$ 6	$ 254	$ 92	$ 3	$ 340	$ 169	$ 12	$ 553

Exhibit C.8b
Cases Avoided and Benefits Annualized at 7 Percent (Based on Best Estimate of Traditional Cost of Illness)
Filtered Systems Only

Data Set	Rule Alternative	Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
		Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
All System Sizes																
ICR	A1	489,663	46,414	1,399,153	81	8	232	$ 87	$ 8	$ 249	$ 347	$ 15	$ 1,206	$ 434	$ 30	$ 1,432
	A2	475,035	44,933	1,355,090	79	7	224	$ 85	$ 8	$ 242	$ 337	$ 15	$ 1,170	$ 421	$ 29	$ 1,390
	A3 - Preferred alt.	464,069	43,741	1,324,897	77	7	219	$ 83	$ 8	$ 236	$ 329	$ 14	$ 1,146	$ 412	$ 28	$ 1,359
	A4	402,209	38,061	1,131,268	67	6	187	$ 72	$ 7	$ 202	$ 286	$ 13	$ 994	$ 357	$ 25	$ 1,167
ICRSSL	A1	146,871	15,412	425,900	24	3	70	$ 26	$ 3	$ 76	$ 103	$ 4	$ 380	$ 129	$ 8	$ 448
	A2	104,032	10,355	308,218	17	2	51	$ 18	$ 2	$ 55	$ 73	$ 3	$ 271	$ 92	$ 5	$ 322
	A3 - Preferred alt.	84,609	7,778	254,515	14	1	42	$ 15	$ 1	$ 45	$ 60	$ 2	$ 222	$ 75	$ 4	$ 264
	A4	51,772	4,343	165,126	9	1	27	$ 9	$ 1	$ 29	$ 36	$ 1	$ 136	$ 45	$ 3	$ 162
ICRSSM	A1	257,406	24,126	800,634	43	4	133	$ 46	$ 4	$ 143	$ 182	$ 7	$ 669	$ 227	$ 14	$ 784
	A2	219,264	20,214	690,946	36	3	114	$ 39	$ 4	$ 123	$ 155	$ 6	$ 573	$ 194	$ 11	$ 673
	A3 - Preferred alt.	198,426	17,823	631,762	33	3	105	$ 35	$ 3	$ 113	$ 140	$ 5	$ 520	$ 176	$ 10	$ 612
	A4	143,056	12,192	472,527	24	2	78	$ 25	$ 2	$ 84	$ 101	$ 4	$ 376	$ 126	$ 7	$ 441
Small Systems																
ICR	A1	51,045	5,331	140,126	8	1	23	$ 7	$ 1	$ 20	$ 28	$ 1	$ 97	$ 35	$ 2	$ 114
	A2	49,622	5,148	136,514	8	1	23	$ 7	$ 1	$ 19	$ 27	$ 1	$ 94	$ 34	$ 2	$ 111
	A3 - Preferred alt.	47,700	4,936	131,541	8	1	22	$ 7	$ 1	$ 18	$ 26	$ 1	$ 91	$ 33	$ 2	$ 106
	A4	40,354	4,296	110,156	7	1	18	$ 6	$ 1	$ 15	$ 22	$ 1	$ 76	$ 28	$ 2	$ 89
ICRSSL	A1	16,365	1,559	46,987	3	0	8	$ 2	$ 0	$ 7	$ 9	$ 0	$ 33	$ 11	$ 1	$ 40
	A2	12,045	1,092	35,440	2	0	6	$ 2	$ 0	$ 5	$ 7	$ 0	$ 25	$ 8	$ 0	$ 29
	A3 - Preferred alt.	9,016	716	27,348	1	0	5	$ 1	$ 0	$ 4	$ 5	$ 0	$ 19	$ 6	$ 0	$ 22
	A4	6,515	469	20,091	1	0	3	$ 1	$ 0	$ 3	$ 4	$ 0	$ 14	$ 4	$ 0	$ 16
ICRSSM	A1	28,357	2,328	88,448	5	0	15	$ 4	$ 0	$ 12	$ 16	$ 1	$ 57	$ 20	$ 1	$ 68
	A2	24,502	2,013	77,374	4	0	13	$ 3	$ 0	$ 11	$ 14	$ 1	$ 50	$ 17	$ 1	$ 59
	A3 - Preferred alt.	21,098	1,732	68,281	3	0	11	$ 3	$ 0	$ 10	$ 12	$ 0	$ 43	$ 15	$ 1	$ 51
	A4	16,853	1,406	54,624	3	0	9	$ 2	$ 0	$ 8	$ 9	$ 0	$ 34	$ 12	$ 1	$ 41
Large Systems																
ICR	A1	438,618	40,437	1,258,180	73	7	208	$ 80	$ 7	$ 230	$ 319	$ 14	$ 1,112	$ 399	$ 27	$ 1,318
	A2	425,413	39,214	1,219,629	70	6	202	$ 78	$ 7	$ 223	$ 309	$ 13	$ 1,080	$ 387	$ 26	$ 1,281
	A3 - Preferred alt.	416,369	38,541	1,190,973	69	6	197	$ 76	$ 7	$ 217	$ 303	$ 13	$ 1,060	$ 379	$ 26	$ 1,252
	A4	361,855	34,164	1,021,604	60	6	169	$ 66	$ 6	$ 187	$ 263	$ 11	$ 916	$ 329	$ 23	$ 1,082
ICRSSL	A1	130,506	13,626	379,940	22	2	63	$ 24	$ 2	$ 69	$ 94	$ 4	$ 348	$ 118	$ 7	$ 410
	A2	91,987	9,056	273,672	15	1	45	$ 17	$ 2	$ 50	$ 66	$ 3	$ 247	$ 83	$ 5	$ 293
	A3 - Preferred alt.	75,594	7,074	228,200	13	1	38	$ 14	$ 1	$ 42	$ 55	$ 2	$ 203	$ 68	$ 4	$ 241
	A4	45,256	3,869	144,918	7	1	24	$ 8	$ 1	$ 26	$ 33	$ 1	$ 123	$ 41	$ 2	$ 146
ICRSSM	A1	229,049	21,608	717,696	38	4	119	$ 42	$ 4	$ 131	$ 166	$ 6	$ 612	$ 208	$ 12	$ 718
	A2	194,762	18,061	615,892	32	3	102	$ 36	$ 3	$ 112	$ 141	$ 5	$ 525	$ 177	$ 10	$ 615
	A3 - Preferred alt.	177,328	16,067	570,363	29	3	94	$ 32	$ 3	$ 104	$ 129	$ 5	$ 476	$ 161	$ 9	$ 562
	A4	126,203	10,585	417,133	21	2	69	$ 23	$ 2	$ 76	$ 92	$ 3	$ 340	$ 115	$ 6	$ 403

Exhibit C.9a
Cases Avoided and Benefits Annualized at 7 Percent (Based on Best Estimate of Enhanced Cost of Illness)
Unfiltered Systems Only

Data Set	Rule Alternative	Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
		Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
All System Sizes																
ICR	A3 - Preferred alt.	500,291	101,149	982,116	130	26	256	$311	$63	$610	$584	$42	$1,742	$895	$122	$2,252
ICR SSL	A3 - Preferred alt.	146,121	29,556	286,785	38	8	75	$91	$18	$178	$171	$12	$509	$261	$36	$658
ICR SSM	A3 - Preferred alt.	256,744	51,932	503,915	67	14	131	$159	$32	$313	$300	$22	$894	$459	$63	$1,155
Small Systems																
ICR	A3 - Preferred alt.	5,464	1,115	11,030	1	0	3	$3	$1	$5	$5	$0	$14	$7	$1	$18
ICR SSL	A3 - Preferred alt.	1,760	359	3,553	0	0	1	$1	$0	$2	$2	$0	$5	$2	$0	$6
ICR SSM	A3 - Preferred alt.	3,048	622	6,153	1	0	2	$1	$0	$3	$3	$0	$8	$4	$1	$10
Large Systems																
ICR	A3 - Preferred alt.	494,828	99,931	971,931	129	26	253	$308	$62	$605	$580	$42	$1,728	$888	$121	$2,233
ICR SSL	A3 - Preferred alt.	144,361	29,151	283,486	38	8	74	$90	$18	$177	$169	$12	$504	$259	$35	$652
ICR SSM	A3 - Preferred alt.	253,696	51,229	498,186	66	13	130	$158	$32	$310	$297	$21	$886	$455	$62	$1,145

Exhibit C.9b
Cases Avoided and Benefits Annualized at 7 Percent (Based on Best Estimate of Traditional Cost of Illness)
Unfiltered Systems Only

Data Set	Rule Alternative	Annual Illnesses Avoided			Annual Deaths Avoided			Value of Benefits for Annual Illnesses Avoided ($Millions)			Value of Benefits for Annual Deaths Avoided ($Millions)			Total Annual Value of Benefits ($Millions)		
			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound			90 Percent Confidence Bound	
		Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)	Mean	Lower (5th %ile)	Upper (95th %ile)
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
All System Sizes																
ICR	A3 - Preferred alt.	500,291	101,149	982,116	130	26	256	$93	$19	$182	$584	$42	$1,742	$677	$71	$1,890
ICR SSL	A3 - Preferred alt.	146,121	29,556	286,785	38	8	75	$27	$5	$53	$171	$12	$509	$198	$21	$552
ICR SSM	A3 - Preferred alt.	256,744	51,932	503,915	67	14	131	$48	$10	$94	$300	$22	$894	$347	$36	$970
Small Systems																
ICR	A3 - Preferred alt.	5,464	1,115	11,030	1	0	3	$1	$0	$2	$5	$0	$14	$6	$1	$15
ICR SSL	A3 - Preferred alt.	1,760	359	3,553	0	0	1	$0	$0	$0	$2	$0	$5	$2	$0	$5
ICR SSM	A3 - Preferred alt.	3,048	622	6,153	1	0	2	$0	$0	$1	$3	$0	$8	$3	$0	$9
Large Systems																
ICR	A3 - Preferred alt.	494,828	99,931	971,931	129	26	253	$92	$19	$181	$580	$42	$1,728	$672	$70	$1,873
ICR SSL	A3 - Preferred alt.	144,361	29,151	283,486	38	8	74	$27	$5	$53	$169	$12	$504	$196	$20	$546
ICR SSM	A3 - Preferred alt.	253,696	51,229	498,186	66	13	130	$47	$10	$93	$297	$21	$886	$344	$36	$960

Exhibit C.10: Number of Illnesses Avoided by Year Following Rule Promulgation

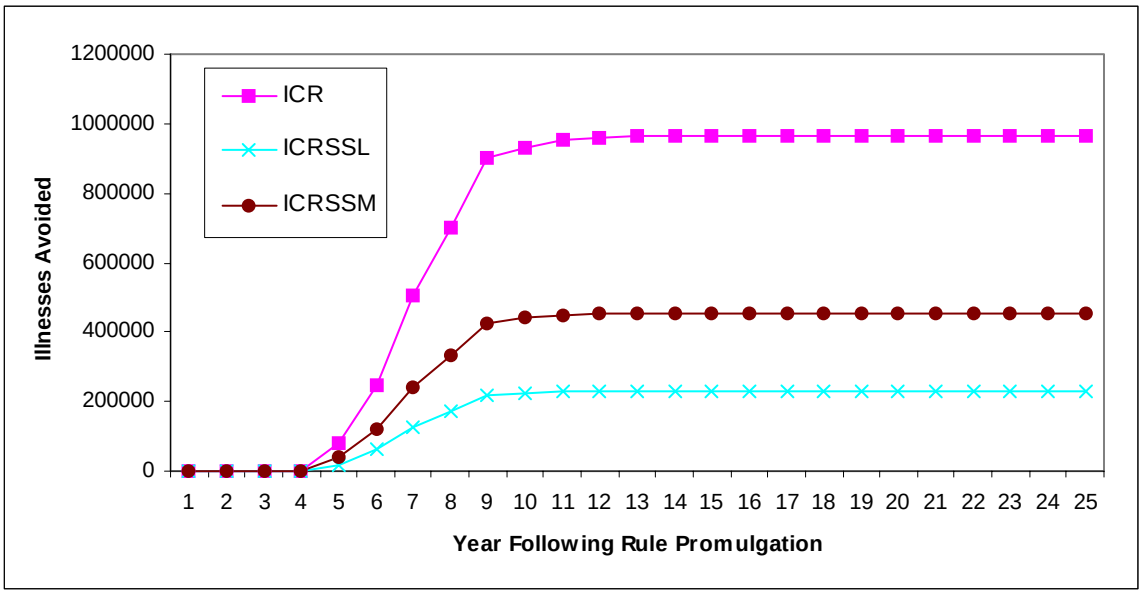
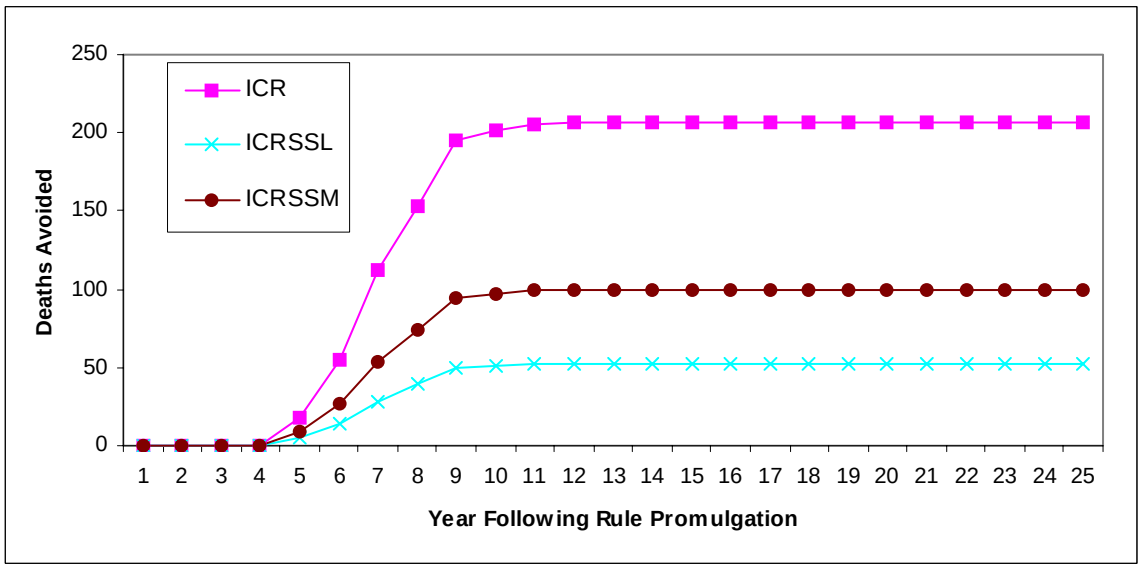


Exhibit C.11: Number of Deaths Avoided by Year Following Rule Promulgation



C.5 Individual Risk Functions

Exhibits C.11 and C.12 display individual risk functions for filtered systems based on the ICR Supplemental Survey occurrence distribution (ICR-based charts for filtered and unfiltered systems are included in Chapter 5). The individual risk functions show the percent of a population exceeding specific risk levels given the predicted outcome of a particular regulatory alternative.

Exhibit C.12: Annual Individual Risk Distributions Based on ICRSSM Occurrence Data, Filtered Community Water Systems (CWSs) Only

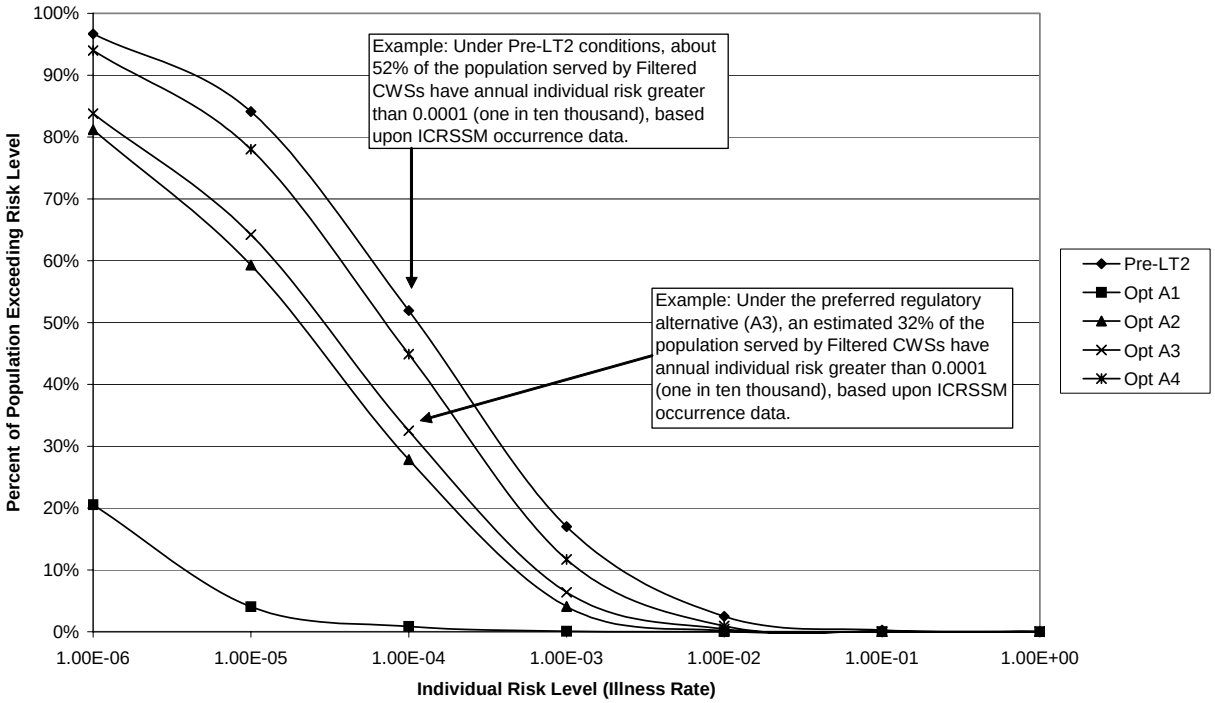
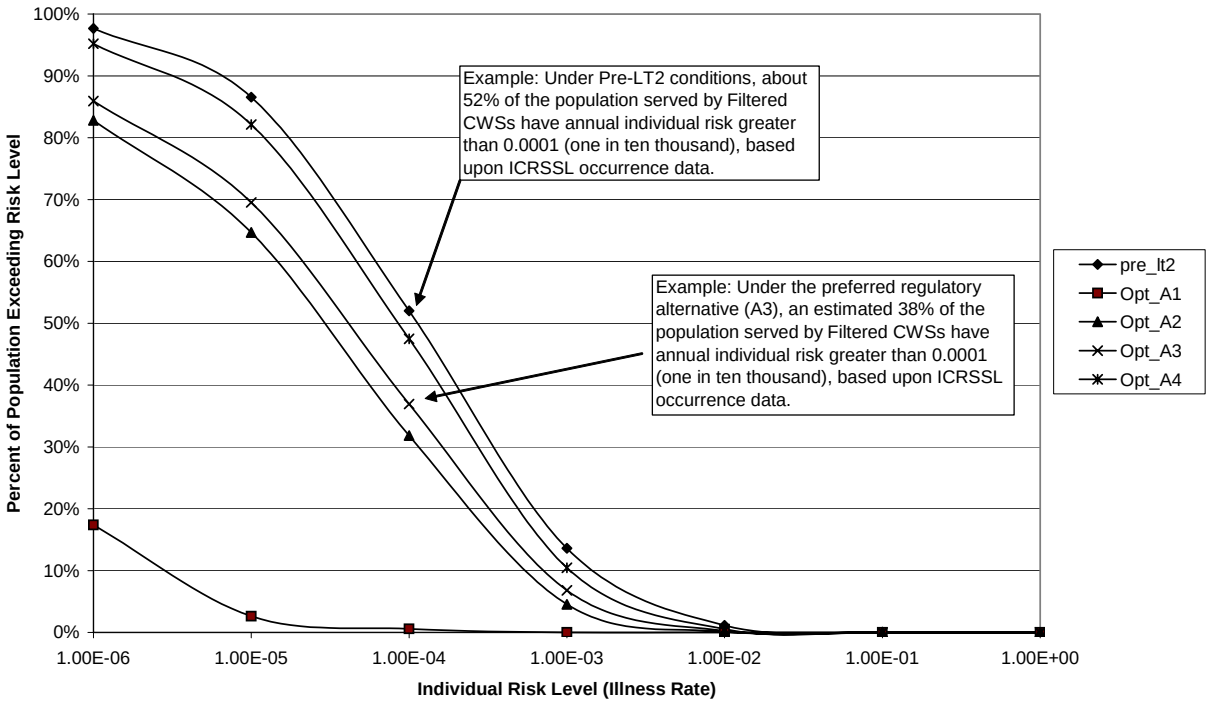


Exhibit C.13: Annual Individual Risk Distributions Based on ICRSSL Occurrence Data, Filtered Community Water Systems (CWSs) Only



C.6 Real Gross Domestic Product (GDP) per Capita

The real GDP per capita projections, as shown in Exhibit C.14, are applied to the Economic Analysis in two places. First, these values are a key input to the equation that determines the income elasticity factors applied to potentially fatal health effects. The results of these calculations are presented in section C.7 and in Exhibit 5.22. Second, the data in Exhibit C.14 are used to compute the growth over time of the value of lost time benefits, and those results are shown in section L.9 and Exhibit L.11. See Section 5.3.1.4 for a more detailed description of both types of adjustment factors.

C.7 Income Elasticity Factors

Exhibit C.15 shows the Consumer Price Index (CPI) adjustment factors used to estimate data to 2000. Exhibit C.16 uses the data from Exhibits C.14 and C.15 to derive the income elasticity factors used in computing the value of a statistical life. The individual values by year are shown in Exhibit 5.22.

Exhibit C.14: Projections of Real GDP per Capita

Year	Population		Real GDP		Income (Real GDP per Capita)	
	Estimates/ Projections (Thousands)	Percent Change	Projection (Billions Chained 2000$)	Percent Change	Projection (Thousands 1996$)	Percent Change
1990	249,439	-	7,112.5	-	28,514	-
1991	252,127	1.1%	7,100.5	-0.2%	28,162	-1.2%
1992	254,995	1.1%	7,336.6	3.3%	28,772	2.2%
1993	257,746	1.1%	7,532.7	2.7%	29,225	1.6%
1994	260,289	1.0%	7,835.5	4.0%	30,103	3.0%
1995	262,765	1.0%	8,031.7	2.5%	30,566	1.5%
1996	265,190	0.9%	8,328.9	3.7%	31,407	2.8%
1997	267,744	1.0%	8,703.5	4.5%	32,507	3.5%
1998	270,299	1.0%	9,066.9	4.2%	33,544	3.2%
1999	272,820	0.9%	9,470.3	4.4%	34,713	3.5%
2000	275,306	0.9%	9,817.0	3.7%	35,659	2.7%
2001	277,803	0.9%	9,866.6	0.5%	35,517	-0.4%
2002	280,306	0.9%	10,083.0	2.2%	35,971	1.3%
2003	282,798	0.9%	10,398.0	3.1%	36,768	2.2%
2004	285,266	0.9%	10,730.7	3.2%	37,617	2.3%
2005	287,716	0.9%	11,245.8	4.8%	39,086	3.9%
2006	290,153	0.8%	11,718.1	4.2%	40,386	3.3%
2007	292,583	0.8%	12,093.1	3.2%	41,332	2.3%
2008	295,009	0.8%	12,419.6	2.7%	42,099	1.9%
2009	297,436	0.8%	12,767.4	2.8%	42,925	2.0%
2010	299,862	0.8%	13,124.9	2.8%	43,770	2.0%
2011	302,300	0.8%	13,466.1	2.6%	44,546	1.8%
2012	304,764	0.8%	13,802.8	2.5%	45,290	1.7%
2013	307,250	0.8%	14,147.8	2.5%	46,047	1.7%
2014	309,753	0.8%	14,501.5	2.5%	46,816	1.7%
2015	312,268	0.8%	14,864.1	2.5%	47,600	1.7%
2016	314,793	0.8%	15,235.7	2.5%	48,399	1.7%
2017	317,325	0.8%	15,616.6	2.5%	49,213	1.7%
2018	319,860	0.8%	16,007.0	2.5%	50,044	1.7%
2019	322,395	0.8%	16,407.2	2.5%	50,891	1.7%
2020	324,927	0.8%	16,817.3	2.5%	51,757	1.7%
2021	327,468	0.8%	17,237.8	2.5%	52,640	1.7%
2022	330,028	0.8%	17,668.7	2.5%	53,537	1.7%
2023	332,607	0.8%	18,110.4	2.5%	54,450	1.7%
2024	335,202	0.8%	18,563.2	2.5%	55,379	1.7%
2025	337,815	0.8%	19,027.3	2.5%	56,325	1.7%
2026	340,441	0.8%	19,502.9	2.5%	57,287	1.7%
2027	343,078	0.8%	19,990.5	2.5%	58,268	1.7%
2028	345,735	0.8%	20,490.3	2.5%	59,266	1.7%
2029	348,391	0.8%	21,002.5	2.5%	60,284	1.7%

Source: Population projections from US Census Bureau (NP-T1: Middle Series).

1990-2003 real GDP from Bureau of Economic Analysis, all other years calculated based on percent change progressions from Congressional Budget Office (January 26, 2004). Projections for years beyond 2014 based on percent change reported for 2014.

Income (Real GPD per Capita)=Real GDP/Population

Exhibit C.15: CPI Estimates

Year	CPI - All Items		
	CPI (Annual Average)	Percent Change	Adjustment Factor (1990 base)
1990	130.7	-	1.00
1991	136.2	4.2%	1.04
1992	140.3	3.0%	1.07
1993	144.5	3.0%	1.11
1994	148.2	2.6%	1.13
1995	152.4	2.8%	1.17
1996	156.9	3.0%	1.20
1997	160.5	2.3%	1.23
1998	163.0	1.6%	1.25
1999	166.6	2.2%	1.27
2000	172.2	3.4%	1.32
2001	177.1	2.8%	1.36
2002	179.9	1.6%	1.38
2003	184.0	2.3%	1.41

Note: 1990 base factors (all items) used to update value of a statistical life values.

Source: Bureau of Labor Statistics

Exhibit C.16: Factors for Incorporation of Income Elasticity into Yearly Benefit Estimates

Year	Factors for Fatal Illnesses				Real Income Adjustment Factors for Indirect Medical Costs (Point Estimates)
	Mean Value	Median Value	90 % Confidence Bound		
			Lower (5th %tile)	Upper (95th %tile)	
2004	1.131	1.131	1.131	1.131	1.031
2005	1.144	1.144	1.144	1.144	1.056
2006	1.158	1.158	1.158	1.158	1.081
2007	1.171	1.171	1.171	1.171	1.107
2008	1.185	1.185	1.185	1.185	1.134
2009	1.198	1.198	1.198	1.198	1.160
2010	1.211	1.211	1.211	1.211	1.186
2011	1.224	1.224	1.224	1.224	1.213
2012	1.237	1.237	1.237	1.237	1.241
2013	1.250	1.250	1.250	1.250	1.269
2014	1.264	1.264	1.264	1.264	1.298
2015	1.277	1.277	1.277	1.277	1.327
2016	1.291	1.291	1.291	1.291	1.357
2017	1.304	1.304	1.304	1.304	1.388
2018	1.318	1.318	1.318	1.318	1.419
2019	1.332	1.332	1.332	1.332	1.452
2020	1.346	1.346	1.346	1.346	1.485
2021	1.360	1.360	1.360	1.360	1.519
2022	1.374	1.374	1.374	1.374	1.554
2023	1.388	1.388	1.388	1.388	1.590
2024	1.402	1.402	1.402	1.402	1.627
2025	1.417	1.417	1.417	1.417	1.664
2026	1.431	1.431	1.431	1.431	1.702
2027	1.446	1.446	1.446	1.446	1.741
2028	1.460	1.460	1.460	1.460	1.782

Note: Income elasticity factors calculated as [(eI1 - eI2 - I2 - I1) / (eI2 - eI1 - I2 - I1)]; where e=income elasticity of WTP estimate, and I=income.

Source: Derived using elasticity distributions and per capita GDP projections

Exhibit C.17a: Undiscounted Benefits by Year–Enhanced COI

Year	Systems ≤10,000	Systems > 10,000	All systems
	A	B	C
2005	$0	$0	$0
2006	$0	$0	$0
2007	$0	$0	$0
2008	$0	$0	$0
2009	$0	$218	$218
2010	$0	$677	$677
2011	$0	$1,394	$1,394
2012	$13	$1,927	$1,940
2013	$39	$2,464	$2,503
2014	$66	$2,543	$2,609
2015	$106	$2,590	$2,696
2016	$121	$2,618	$2,739
2017	$136	$2,646	$2,782
2018	$138	$2,675	$2,813
2019	$139	$2,705	$2,844
2020	$141	$2,735	$2,876
2021	$142	$2,765	$2,908
2022	$144	$2,796	$2,940
2023	$146	$2,827	$2,973
2024	$147	$2,859	$3,006
2025	$149	$2,891	$3,040
2026	$151	$2,923	$3,074
2027	$153	$2,956	$3,109
2028	$154	$2,989	$3,144
2029	$156	$3,023	$3,179

Source: Benefits Model

Exhibit C.17b: Undiscounted Benefits by Year–Traditional COI

Year	Systems ≤10,000	Systems > 10,000	All systems
	A	B	C
2005	$0	$0	$0
2006	$0	$0	$0
2007	$0	$0	$0
2008	$0	$0	$0
2009	$0	$162	$162
2010	$0	$503	$503
2011	$0	$1,032	$1,032
2012	$9	$1,422	$1,431
2013	$27	$1,814	$1,841
2014	$46	$1,867	$1,913
2015	$74	$1,896	$1,970
2016	$84	$1,913	$1,997
2017	$94	$1,930	$2,024
2018	$95	$1,947	$2,042
2019	$96	$1,964	$2,060
2020	$97	$1,981	$2,078
2021	$98	$1,999	$2,096
2022	$98	$2,016	$2,115
2023	$99	$2,034	$2,134
2024	$100	$2,052	$2,153
2025	$101	$2,071	$2,172
2026	$102	$2,089	$2,191
2027	$103	$2,108	$2,211
2028	$104	$2,126	$2,230
2029	$105	$2,145	$2,250

Source: Benefits Model

Appendix D
National Costs for Rule Implementation and Monitoring

D.1 Introduction

This appendix presents detailed calculations and cost tables for activities associated with:

- LT2ESWTR implementation; and
- Monitoring for bin classification for three of the four regulatory alternatives.

(Alternative A1 is not discussed because it requires all plants to implement 2 additional log of *Cryptosporidium* treatment, and thus has no bin classification monitoring requirements.) Costs for all activities are estimated as one-time costs. This appendix supports the discussion of the rule activities in Chapter 6. Each set of activities is detailed separately in subsequent sections.

EPA evaluated the ICR, ICRSSM, and the ICRSSL modeled *Cryptosporidium* occurrence distributions to estimate the percentage of plants that would fall into any treatment bin, and assumed that this percentage of small plants would be triggered to conduct *Cryptosporidium* monitoring. The three modeled occurrence distributions are used in this appendix to establish a range of possible costs for *Cryptosporidium* monitoring.

D.2 Baseline Number of Systems and Plants

Implementation

Implementation costs are based on the number of PWSs that must read and understand the rule, and apply to all nonpurchased systems, including filtered and unfiltered systems. Purchased systems, because they are assumed not to directly treat any source water, are not expected to have any implementation costs, although these and other costs will be passed on to them in the form of higher water rates.

Source Water Monitoring for Bin Classification

Source water monitoring costs are structured on a per-plant basis. Also, as with implementation activities, purchased plants are assumed not to treat source water and will not have any monitoring costs. Monitoring requirements for wholesale systems are determined by the largest system in the combined distribution system. The Stage 2 DBPR defines wholesale and combined distribution systems as follows:

- Wholesale Systems: PWSs that treat and then sell or otherwise deliver finished water to another PWS at least 60 days per year.
- Combined Distribution Systems: PWSs that buy or otherwise receive some or all of their finished water from one or more wholesale systems for at least 60 days per year.

As described in Chapter 4, EPA evaluated SDWIS data to link the purchasing systems with their sellers. In this exercise, they also determined the largest system in the combined distribution system. All

monitoring-related costs are derived using this baseline (i.e., a system inventory that categorizes by population served by the largest system in the combined distribution system).

There are three types of monitoring that plants may be required to conduct—turbidity, *E. coli*, and *Cryptosporidium*. Source water turbidity is a common water quality parameter used for plant operational control. Also, to meet SWTR, LT1ESWTR, and IESWTR requirements, most water systems have in-house turbidity analytical equipment and operators experienced with turbidity measurement. Thus, EPA assumes that the incremental burden associated with the LT2ESWTR of monitoring for turbidity is negligible. (Turbidity is not evaluated in this appendix.)

All nonpurchased plants in large and medium systems are required to conduct *E. coli* and *Cryptosporidium* monitoring for bin classification with two exceptions.

- Plants that achieve 5.5 log of *Cryptosporidium* reduction are exempt from all monitoring requirements. (Estimates of plants that meet this criterion are presented in the baseline for filtered and unfiltered plants in Chapter 4.)

- Plants that have 2 years of historical *Cryptosporidium* data that are equivalent in sample number, frequency, and data quality (e.g., volume analyzed, percent recovery) to data that would be collected under the LT2ESWTR with EPA Method 1622/23 may use that data to meet the monitoring requirements. (Thus, they do not have to conduct turbidity or *E.coli* monitoring.) For costing purposes, however, EPA assumes that no plants will provide historical data to meet the requirements above.

Plants in small systems will be required to conduct 1 year of semi-monthly *E. coli* source water monitoring for bin classification, with the exception of plants achieving 5.5 log of *Cryptosporidium* reduction (as presented in Chapter 4). These small plants will have to monitor for *Cryptosporidium* only if *E. coli* monitoring results exceed the following levels:

- annual mean > 10 *E. coli*/100 ml for lakes and reservoirs;

- annual mean > 50 *E. coli*/100 ml for flowing streams.

Plants may fulfill *Cryptosporidium* monitoring requirements with either 1 year of semi-monthly samples or 2 years of monthly samples.

Exhibits D.1 through D.3 present the baseline number of systems that must conduct implementation and monitoring for Alternative A2 for CWSs, NTNCWSs, and TNCWSs, based on the ICR, ICRSSM, and ICRSSL occurrence distributions, respectively.

Exhibits D.4 through D.6 present the baseline number of systems that must conduct implementation and monitoring for Alternative A3 for CWSs, NTNCWSs, and TNCWSs, based on the ICR, ICRSSM, and ICRSSL occurrence distributions, respectively.

Exhibits D.7 through D.9 present the baseline number of systems that must conduct implementation and monitoring for Alternative A4 for CWSs, NTNCWSs, and TNCWSs, based on the ICR, ICRSSM, and ICRSSL occurrence distributions, respectively.

D.3 Rule Implementation Activities

This section presents the costs for systems and States/Primacy Agencies to perform implementation activities associated with the LT2ESWTR. Activities performed by PWSs include reading and understanding the rule and training employees on rule requirements. PWSs of all sizes that use UCFWRs will report their use, along with a schedule to cover the reservoir or disinfect the reservoir effluent. The number of systems that must conduct implementation activities is the same for all occurrence distributions. State implementation activities include regulation adoption and program development, training State/Primacy Agency staff, training PWS staff, providing technical assistance, and updating data management systems. States must record systems using UCFWRs and review and approve schedules for systems to disinfect the reservoir. The cost and burden incurred as part of rule implementation are not expected to vary for the different regulatory alternatives.

Assumptions and cost estimates for rule implementation activities are presented in the following tables:

- Exhibit D.10 Cost and Burden Estimates for Rule Implementation Activities
- Exhibit D.11 State Cost and Burden Estimates for Rule Implementation Activities

D.4 Monitoring Activities for Initial Bin Classification

The purpose of bin classification is to determine what level of *Cryptosporidium* reduction will be required. Bin classification is determined by source water *Cryptosporidium* monitoring.

Monitoring costs for PWSs include the labor associated with preparing and submitting a sample schedule, identifying a location, and collecting *E. coli* and *Cryptosporidium* samples; shipping and analyzing the samples; and reporting results to the State/Primacy Agency. State costs for analyzing, tracking, and responding to PWS reports are also included in the bin classification monitoring costs. Cost estimates for each type of monitoring are described in detail in this section.

D.4.1 *E. coli* Monitoring

Number of Samples

Under Alternatives A2 through A4, small plants are required for 1 year to sample source water biweekly for *E. coli* (26 total samples). Under the same regulatory alternatives, large and medium plants will carry out monitoring on a predetermined schedule for 24 months. The number of samples is based on one of two monitoring scenarios:

- Highest 12-month running annual average (RAA) if monthly samples are taken (24 samples total); or
- Two-year mean if the plant conducts a minimum of twice per month monitoring for 24 months (at least 48 samples total).

EPA estimates that most large and medium plants will use the maximum RAA for bin classification because it requires fewer samples. Therefore, costs are estimated based on 24 monthly samples.

Laboratory Costs

Systems may analyze their samples in house if they have the equipment, or they may send the samples to a commercial laboratory. EPA estimates cost per sample of in-house analysis at $21.00 (DynCorp 2000)), and shipping to a commercial laboratory at $70 (includes shipping and commercial analysis) (DynCorp 2002). The average cost per sample for various system sizes reflects the estimate of the percentage of plants that will do in-house versus commercial analysis. The total laboratory cost of an *E. coli* sample ($57.75 for small plants, $33.25 for medium plants, and $21.00 for large plants) takes into account the percentage of systems with *E. coli* analysis capabilities. For those that do not have in-house capabilities, overnight shipping costs (based on FedEx rates) have been added to the laboratory fee. The estimate of plants with in-house analytical capabilities for *E. coli* was generated using the Baseline Handbook. Total laboratory costs for *E. coli* monitoring are summarized in Exhibit D.12 for each population size category of CWSs, NTNCWSs, and TNCWSs. The ICR, ICRSSM, and ICRSSL occurrence distributions do not affect the number of plants monitoring for *E. coli*.

Labor Costs

In addition to the laboratory costs for *E. coli* monitoring, labor will be required for plant employees to take the samples.

Sampling points are at the source water intake; therefore, each sample was estimated to take 15 minutes. A technical labor rate is assumed for *E. coli* monitoring. Technical labor rates range from $21.44 to $31.26 per hour depending on system size (see Chapter 6, Section 6.1, for details). Total labor costs per plant were estimated by multiplying the minutes required per sample (converted into hours), the number of samples per plant per year, and the labor rate per hour. Total labor costs for *E. coli* monitoring are summarized in Exhibit D.12 for CWSs, NTNCWSs, and TNCWSs, respectively. Once again, ICR, ICRSSM, and ICRSSL occurrence distributions do not affect the number of plants that must monitor for *E. coli*.

D.4.2 *Cryptosporidium* Monitoring

Number of Samples

Small plants whose *E. coli* monitoring results (see section D.2) trigger the *Cryptosporidium* monitoring requirement will be obligated to collect and analyze atleast 24 source water *Cryptosporidium* samples over 1 or 2 years. For costing purposes, EPA assumes that small plants will collect 24 samples and bin assignment will be based on the average concentration of all samples. Large and medium plants will carry out *Cryptosporidium* monitoring on a predetermined schedule similar to the *E.coli* requirements for 24 months.

For all plant sizes, EPA assumes two additional matrix spike samples will be collected during the monitoring period for compliance with the analytical method (Method 1623).

Although the sampling requirements for plants required to monitor *Cryptosporidium* are the same for Alternatives A2 through A4, the number of plants triggered to monitor will vary for each regulatory alternative.

Laboratory Costs

The total cost of laboratory analysis of a *Cryptosporidium* sample ($529.50) is the sum of the laboratory and shipping costs and the cost of analyzing multiple subsamples.

DynCorp (2000) estimated the laboratory cost for *Cryptosporidium* analysis ($403.00). This estimate assumes that the laboratory filters the sample, so the PWS ships the entire 10-liter sample. A shipping cost ($88.70, based on FedEx rates) is added, assuming that all plants must ship samples overnight to private laboratories for analysis. Samples must be divided into subsamples for analysis if they have a pellet size greater than 0.5 ml. The proportion of samples being subdivided is based on results of the Supplemental Surveys. Laboratory and shipping costs per plant are summarized in Exhibits D.13 through D15.

Total laboratory costs for Alternative A2 are shown in Exhibits D.13a to D.13c. The costs for Alternative A2 for each system type are identical for the ICR, ICRSSM, and ICRSSL occurrence distributions because under Alternative A2, all small plants are assumed to be triggered into *Cryptosporidium* monitoring based on *E. coli* monitoring results. Because the cutoff level for the first bin under Alternative A2 is less than half the *Cryptosporidium* concentration cutoff for Bin 1 under Alternative A3, the *E. coli* trigger level would presumably also be much lower under Alternative A2. EPA estimated that these levels would be so low that all small plants would be triggered into *Cryptosporidium* monitoring.

Total laboratory costs for *Cryptosporidium* monitoring are summarized in Exhibits D.14a through D.14c for each population size category of CWSs, NTNCWSs, and TNCWSs, based on the ICR, ICRSSM, and ICRSSL occurrence distributions, respectively, for Alternative A3. Total laboratory *Cryptosporidium* analysis costs range from approximately $42.8 million (based on the ICRSSL) to $51.6 million (based on the ICR).

Total laboratory costs for *Cryptosporidium* monitoring are summarized in Exhibits D.15a through D.15c for each population size category of CWSs, NTNCWSs, and TNCWSs, based on the ICR, ICRSSM, and ICRSSL occurrence distributions, respectively, for Alternative A4. Total laboratory *Cryptosporidium* analysis costs range from approximately $58.7 million (based on the ICRSSL) to $61.1 million (based on the ICR).

Labor Costs

In addition to the laboratory costs for *Cryptosporidium* monitoring, labor will be required for plant employees to take samples. Samples are required at the source water intake. Collecting a sample was estimated to take 30 minutes, slightly higher than the time assumed for *E. coli* samples, because of the larger volume required. A technical labor rate was assumed for *Cryptosporidium* monitoring. Labor costs per plant were estimated by multiplying the number of hours per sample, the number of samples per plant per year, and the labor rate per hour. These costs and total costs are shown in Exhibit D.13 through D.15, based on the ICR, ICRSSM, and ICRSSL occurrence distributions for Alternatives A2 through A4, respectively. The labor costs for each system type are identical for the ICR, ICRSSM, and ICRSSL occurrence distributions for Alternative A2 because under that regulatory alternative, all plants are required to monitor for *Cryptosporidium*.

D.4.3 PWS Reporting Costs

PWSs must report to the State their sampling schedule and location(s) 3 months before starting source water monitoring. EPA is not requiring a detailed monitoring plan, in the hopes that this will minimize the burden.

Because source water monitoring starts 6 months to 2 years after rule promulgation for medium and large systems, EPA assumes States will not have primacy when these systems begin monitoring. Therefore, EPA will collect sample analysis data directly from the approved laboratories on an ongoing basis. (As data are generated, laboratories will enter them into an EPA database.) However, these systems will still review the data. At the end of the 2-year monitoring period, EPA will give the

monitoring results to the States/Primacy Agencies, which will work with their systems to determine appropriate compliance steps. Small system monitoring is expected to occur after States achieve primacy and therefore, small plants will report monitoring results to their State/Primacy Agency.

Following source water monitoring, PWSs must calculate a mean source water *Cryptosporidium* concentration to determine their bin assignment. Bin reporting must be submitted to the State/Primacy Agency.

PWS costs associated with reporting activities (i.e., preparing and submitting a sampling schedule and location, reporting monitoring data, and calculating and reporting bin classification) are derived from the time spent to gather, analyze, and submit the information to their State/Primacy Agency. EPA estimates 6 hours per plant for large and medium systems, and 6.5 hours for small systems to account for the indicator (*E.coli*) data analysis and reporting.

Reporting costs for small plants serving up to 500 people are based on the full technical rate (range from $21.44 to $31.26 per hour). For those plants serving more than 500 people, costs are based on an 80/20 percent split between technical and managerial labor rates. Labor rates vary by system size; see Section 6.1 for details on rates. The costs of reporting are presented in Exhibit D.16 for CWSs, NTNCWSs, and TNCWSs, respectively. The number of plants reporting is the same for the ICR, ICRSSM, and ICRSSL occurrence distributions.

D.4.4 Initial and Future Monitoring Costs for States/Primacy Agencies

States/Primacy Agencies will incur costs as a result of the small system *E. coli* and *Cryptosporidium* monitoring. To estimate State/Primacy Agency costs, the number of FTEs required per activity is multiplied by the number of labor hours per FTE, the State/Primacy Agency labor hour cost, and the number of States and Territories.

EPA estimated the number of FTEs required per activity based on similar rules. States/Primacy Agencies are expected to work with the small systems conducting monitoring to review data and make bin classification determinations. State/Primacy Agency activities include:

- Reviewing source water sampling schedules and locations;
- Analyzing monitoring reports and determining bin classification–0.3 FTEs for initial *E. coli* monitoring, 0.2 FTEs for initial *Cryptosporidium* monitoring and future *E. coli* monitoring, and 0.1 FTEs for future *Cryptosporidium* monitoring;
- Consulting with PWSs–the same number of FTEs as above; and
- Keeping records–0.25 FTEs.

State/Primacy Agency labor rates, as described in Chapter 6, section 6.1.1, are $33.60. The number of States and Territories is the sum of the 50 States, 6 Territories, and 1 Indian Tribe. EPA estimates the national total monitoring cost for States/Primacy Agencies to be $12.2 million for initial and future monitoring combined. State costs are expected to be minimal during the initial phase of monitoring for large and medium systems because EPA will be analyzing the data.

The initial monitoring costs for States/Primacy Agencies are presented in Exhibit D.17a. The future (bin reassignment) monitoring costs for States/Primacy Agencies are presented in Exhibits D.17b.

D.5 Technology Compliance Reporting

D.5.1 State Burden for Reviewing Technology Compliance Reports

PWSs of all sizes that install new technology as a result of their bin classifications will be required to demonstrate compliance with certain criteria for each technology. States/Primacy Agencies are expected to review the data PWSs submit for this purpose. LT2ESWTR gives States the authority to allow certification of system compliance instead of submitting operating data. Considering many states will adopt this method of reporting while others will require submission of the operating data, the burden is estimated to be 0.5 hours per plant reviewed per month, or 6 hours per plant per year. The number of plants reporting is expected to vary with the occurrence distribution used and the regulatory alternative chosen. The labor rate for States and Primacy Agencies is the same as for other exhibits calculating State costs—$33.60. The State burden and cost for reviewing reports on compliance with each technology are shown in Exhibits D.18 to D.20.

D.5.2 Technology Compliance Reporting for Plants

In order to get log removal credit for *Cryptosporidium*, PWSs will be required to demonstrate that they are complying with design and operational criteria for any new toolbox technologies they install. For some technologies, the demonstration of compliance will be similar to that required for existing technologies, and no additional burden will be incurred. For instance, the combined filter performance toolbox option requires monitoring of each filter's effluent turbidity; systems are already required to do this monitoring under the IESWTR and the LT1ESWTR. No new burden is assumed for these systems. It is assumed that few systems will implement other technologies (based on technology distributions modeled for the LT2ESWTR EA), so the overall burden for demonstrating compliance is negligible. Few systems, for example, are expected to implement watershed control programs for log removal credit.

The labor associated with each regulatory alternative and occurrence distribution is shown in Exhibits D.21 through D.23. Only systems switching to UV, ozone, microfiltration/ultrafiltration, and bank filtration are predicted to incur the new burden. Only systems installing UV or ozone for disinfection (supplementing their existing disinfectants) are predicted to incur reporting costs.

Reporting costs for plants serving fewer than 3,300 people are based on the full technical rate. For those plants serving 3,300 or more people, costs are based on an 80/20 percent split between technical and managerial labor rates.

The reporting and record-keeping burden for each plant is assumed to be 3 hours per month, or 36 hours per year.

D.6 Disinfection Benchmarking

D.6.1 Disinfection Benchmarking for PWSs

PWSs that make significant changes to their disinfection process will be required to develop a disinfection profile for *Giardia* and viruses, and to calculate benchmarks.

Prior to making the change, plants must compile and submit their disinfection profiles and benchmarks to their States and consult with their States about the change. Only plants that are predicted to change technologies as a result of bin classification are assumed to submit their disinfection profile. The burden for this is estimated to be 4 hours per plant and is shown in Exhibits D.24 through D.26.

Reporting costs for plants serving fewer than 3,300 people are based on the full technical rate. For those plants serving 3,300 or more people, costs are based on an 80/20 percent split between technical and managerial labor rates.

D.6.2 State Burden for Disinfection Benchmarking

The burden for reviewing disinfection benchmarks and plants' requests to change disinfection processes (2 hours per plant) is shown in Exhibits D.27 through D.29.

D.7 Future Monitoring for Bin Reclassification

Six years after initial bin assignment, systems will be required to undergo another round of monitoring to determine if their source water quality has changed, thus changing the required treatment. Lacking better information, EPA assumed that costs are the same as the costs for the initial monitoring round. The number of plants did change, however, as plants that achieved 5.5 log treatment to comply with the LT2ESWTR were omitted from the second round of monitoring.

D.7.1 Future *E. coli* Monitoring

Exhibits D.30 through D.32 show the future laboratory and labor costs for *E. coli* monitoring. The only change from the original round is the number of plants sampling. The tables display costs for the three *Cryptosporidium* occurrence distributions for Alternatives A2 through A4.

D.7.2 Future *Cryptosporidium* Monitoring

Exhibits D.33 through D.35 show costs and labor for future *Cryptosporidium* monitoring. Only small plants assigned to a treatment bin after the first round of monitoring are assumed to monitor for *Cryptosporidium*. Also, plants that install 5.5 log removal treatment technology are omitted from the future monitoring requirements.

D.7.3 Future Monitoring Reporting

Labor and cost of labor for future monitoring are assumed to be the same as for initial monitoring, although for future monitoring, all systems are expected to report their results to their States/Primacy Agencies rather than to EPA. The number of systems monitoring, however, will be lower than for initial monitoring, since some plants are expected to have implemented treatment that exempts them from future monitoring.

Costs associated with reporting will include the amount of time it takes for a plant to gather monitoring information and to submit it to its State/Primacy Agency for review. Since the exact schedule of reporting to States is not set in the rule, there may be some variation in reporting effort from State to State.

For this analysis, 0.25 hours per sample (6.5 hours for small plants and 6 hours for medium and large systems) is used to estimate costs.

Reporting costs for small plants serving fewer than 3,300 people are based on the full technical rate. For those plants serving 3,300 or more people, costs are based on an 80/20 percent split between technical and managerial labor rates. The costs of reporting are presented in Exhibits D.36 to D.38 for Alternatives A2 to A4, respectively. The number of systems reporting also varies with the use of the ICR, ICRSSM, and ICRSSL occurrence distributions. This is because future monitoring and reporting depends on the number of systems placed in different treatment bins, and this is a function of the occurrence distribution.

D.8 Uncovered Finished Water Reservoir Reporting

LT2ESWTR contains provisions to mitigate risk from UCFWRs, in which water is subject to contamination after being treated. Systems with UCFWRs must cover the reservoir or treat reservoir discharge to the distribution system to achieve 4 log virus inactivation, 3-log *Giardia lamblia* inactivation, and 2-log *Cryptosporidium* inactivation. Based on a survey of EPA regions, EPA estimates that systems must report the use of and submit plans to cover or treat 81 uncovered finished water reservoirs.

D.8.1 Uncovered Finished Water Reservoir Reporting for PWSs

The burden associated with UCFWR reporting includes the time PWS staff will take to report the use of the UCFWR. It also includes the time needed to prepare and submit to the State a schedule to cover or treat the UCFWR discharge. This burden will incurred by the 81 CWSs with UCFWRs.

Systems must report the use of UCFWRs to the State within 24 months, and must have a State-approved schedule to cover or treat the reservoir discharge within 36 months. In order to allow States adequate time to review/approve system schedules, it is assumed that systems will submit schedules to States within 24 months.

Columns A and B of Exhibit D.39 present the burden to PWSs associated with UCFWR reporting. EPA estimates the burden associated with UCFWR reporting will be 8.25 hours per system. EPA estimates the burden associated with reporting the use of the UCFWR will be 0.25 hours per system, and that the burden associated with reporting to the State a schedule to cover or treat the UCFWR discharge will be eight hours per system.

D.8.2 State/Primacy Agency Burden for Uncovered Finished Water Reservoir Reporting

States must record systems using UCFWRs and review and approve schedules for system to disinfect the reservoir. Exhibit D.40 shows the total State/Primacy Agency burden associated with reviewing/approving UCFWR schedules submitted by PWSs. It is assumed that States will need one year to review/approve system schedules to cover or treat the reservoir discharge. The burden for a State to record the use of an individual UCFWR is estimated as 0.25 hours, and the burden for a State to approve a State's schedule to cover or disinfect UCFWR discharge is estimated as 1 hour. The national total burden for the seven States/Primacy Agencies with UCFWRs is estimated as 101 hours.

Costs to States/Primacy Agencies for recording, reviewing and approving UCFWR schedules are estimated in Column E of Exhibit D.40. Only the seven States/Primacy Agencies with UCFWRs are expected to incur burden for these activities.

Exhibit D.1 Baseline Implementation and Monitoring Activities for All System Types, Based on ICR Occurrence Distribution, Alternative A2

System Size (Population Served)	Implementation				Monitoring for Initial Bin Classification			Future Monitoring for Re-Binning			
	Number of Filtered Systems	Number of Unfiltered Systems	Percent of Plants with > 5.5 Log Treatment Prior to Rule Promulgation	Plants Per System	Baseline # of Plants Conducting *E. coli* Monitoring	Percent of Plants Triggered to Monitor for *Crypto-sporidium*	Baseline # of Plants Conducting *Crypto-sporidium* Monitoring	Percent of Plants with > 5.5 Log Treatment for LT2 Compliance	Percent of Plants with > 5.5 Log Treatment for Stage 2 Compliance	Baseline # of Plants Conducting *E. coli* Monitoring	Baseline # of Plants Conducting *Crypto-sporidium* Monitoring
	A	B	C	D	E = A*D*(1-C)	F	G = E*F+B*D	H	I	J = E*(1-H-I)	K = F*J
CWSs											
<100	341	1	3.6%	1.0	333	100%	334	8.3%	15.0%	255	255
100-499	708	4	3.6%	1.0	683	100%	687	8.3%	6.3%	582	582
500-999	425	3	3.6%	1.1	432	100%	435	8.3%	6.3%	368	368
1,000-3,299	1,076	15	3.6%	1.0	1,072	100%	1,087	22.0%	1.8%	816	816
3,300-9,999	1,052	14	3.6%	1.0	1,054	100%	1,068	21.8%	1.8%	804	804
10,000-49,999	1,010	14	0.4%	1.1	1,092		1,107	33.7%	1.5%	708	708
50,000-99,999	213	4	0.4%	1.2	264		269	33.6%	1.5%	171	171
100,000-999,999	220	4	0.4%	1.4	313		318	33.1%	1.5%	205	205
≥ 1 Million	16	1	0.4%	3.4	53		57	33.1%	1.5%	35	35
National Totals	**5,061**	**60**			**5,294**		**5,361**			**3,945**	**3,945**
NTNCWSs											
<100	180	-	3.6%	1.0	174	100%	174	8.3%	15.0%	133	133
100-499	241	-	3.6%	1.0	232	100%	232	8.3%	6.3%	198	198
500-999	81	-	3.6%	1.0	78	100%	78	8.3%	6.3%	67	67
1,000-3,299	63	-	3.6%	1.0	61	100%	61	22.0%	1.8%	46	46
3,300-9,999	13	-	3.6%	1.0	13	100%	13	21.8%	1.8%	10	10
10,000-49,999	1	-	0.4%	1.0	1		1	33.7%	1.5%	1	1
50,000-99,999	-	-	0.4%	1.0	-		-	0.0%	1.5%	-	-
100,000-999,999	-	-	0.4%	1.0	-		-	0.0%	1.5%	-	-
≥ 1 Million	-	-	0.4%	1.0	-		-	0.0%	1.5%	-	-
National Totals	**579**				**558**		**558**			**454**	**454**
TNCWSs											
<100	793	-	0.0%	1.0	793	100%	793	8.3%	0.0%	727	727
100-499	509	-	0.0%	1.0	509	100%	509	8.3%	0.0%	467	467
500-999	79	-	0.0%	1.0	79	100%	79	8.3%	0.0%	72	72
1,000-3,299	49	-	0.0%	1.0	49	100%	49	22.0%	0.0%	38	38
3,300-9,999	16	-	0.0%	1.0	16	100%	16	21.8%	0.0%	13	13
10,000-49,999	9	-	0.0%	1.0	9		9	33.7%	0.0%	6	6
50,000-99,999	-	-	0.0%	1.0	0		0	0.0%	0.0%	-	-
100,000-999,999	1	-	0.0%	1.0	1		1	16.6%	0.0%	1	1
≥ 1 Million	-	-	0.0%	1.0	0		0	65.4%	0.0%	-	-
National Totals	**1,456**			**0.0**	**1,456**		**1,456**			**1,324**	**1,324**
Grand Totals	**7,096**	**60**		**0.0**	**7,308**		**7,375**			**5,723**	**5,723**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:

(A) Number of unlinked, non-purchased SW & GWUDI systems from the Third Edition Baseline Handbook, which is based on data from EPA's Safe Drinking Water Information System (USEPA 2000h).

(B) EPA assumes only membrane plants will have > 5.5 log *Cryptosporidium* treatment prior to rule promulgation. Percentage estimates are from the Economic Analysis for the Stage 2 DBPR.
(C) Estimate of the number of plants or entry points per system. Derived from 1995 Community Water System Survey data.

(E) Percent of plants triggered into *Cryptosporidium* monitoring is estimated from the modeled Occurrence Distributions.
(G) Derived from Appendix F. This number is calculated by dividing the number of plants estimated to be achieving 5.5 log treatment by the total number of plants for the size category.

(H) EPA assumes only membrane plants will have > 5.5 log *Cryptosporidium* treatment as a result of the Stage 2 DBPR. Percent estimates are from the Economic Analysis for the Stage 2 DBPR.

Exhibit D.2 Baseline Implementation and Monitoring Activities for All System Types, Based on ICRSSM Occurrence Distribution, Alternative A2

	Implementation				Monitoring for Initial Bin Classification			Future Monitoring for Re-Binning			
System Size (Population Served)	Number of Filtered Systems	Number of Unfiltered Systems	Percent of Plants with > 5.5 Log Treatment Prior to Rule Promulgation	Plants Per System	Baseline # of Plants Conducting *E. coli* Monitoring	Percent of Plants Triggered to Monitor for *Cryptosporidium*	Baseline # of Plants Conducting *Cryptosporidium* Monitoring	Percent of Plants with > 5.5 Log Treatment for LT2 Compliance	Percent of Plants with > 5.5 Log Treatment for Stage 2 Compliance	Baseline # of Plants Conducting *E. coli* Monitoring	Baseline # of Plants Conducting *Cryptosporidium* Monitoring
	A	B	C	D	E = A*D*(1-C)	F	G = E*F+B*D	H	I	J = E*(1-H-I)	K = F*J
CWSs											
<100	341	1	3.6%	1.0	333	100%	334	4.7%	15.0%	267	267
100-499	708	4	3.6%	1.0	683	100%	687	4.7%	6.3%	608	608
500-999	425	3	3.6%	1.1	432	100%	435	4.6%	6.3%	384	384
1,000-3,299	1,076	15	3.6%	1.0	1,072	100%	1,087	15.2%	1.8%	889	889
3,300-9,999	1,052	14	3.6%	1.0	1,054	100%	1,068	15.0%	1.8%	876	876
10,000-49,999	1,010	14	0.4%	1.1	1,092		1,107	28.0%	1.5%	770	770
50,000-99,999	213	4	0.4%	1.2	264		269	27.9%	1.5%	186	186
100,000-999,999	220	4	0.4%	1.4	313		318	27.3%	1.5%	223	223
≥ 1 Million	16	1	0.4%	3.4	53		57	27.3%	1.5%	38	38
National Totals	**5,061**	**60**			**5,294**		**5,361**			**4,241**	**4,241**
NTNCWSs											
<100	180	-	3.6%	1.0	174	100%	174	4.7%	15.0%	139	139
100-499	241	-	3.6%	1.0	232	100%	232	4.7%	6.3%	207	207
500-999	81	-	3.6%	1.0	78	100%	78	4.6%	6.3%	70	70
1,000-3,299	63	-	3.6%	1.0	61	100%	61	15.2%	1.8%	50	50
3,300-9,999	13	-	3.6%	1.0	13	100%	13	15.0%	1.8%	10	10
10,000-49,999	1	-	0.4%	1.0	1		1	28.0%	1.5%	1	1
50,000-99,999	-	-	0.4%	1.0			0	0.0%	1.5%	-	-
100,000-999,999	-	-	0.4%	1.0			0	0.0%	1.5%	-	-
≥ 1 Million	-	-	0.4%	1.0			0	0.0%	1.5%	-	-
National Totals	**579**	**-**			**558**		**558**			**477**	**477**
TNCWSs											
<100	793	-	0.0%	1.0	793	100%	793	4.7%	0.0%	756	756
100-499	509	-	0.0%	1.0	509	100%	509	4.7%	0.0%	485	485
500-999	79	-	0.0%	1.0	79	100%	79	4.6%	0.0%	75	75
1,000-3,299	49	-	0.0%	1.0	49	100%	49	15.2%	0.0%	42	42
3,300-9,999	16	-	0.0%	1.0	16	100%	16	15.0%	0.0%	14	14
10,000-49,999	9	-	0.0%	1.0	9		9	28.0%	0.0%	6	6
50,000-99,999	-	-	0.0%	1.0	-		0	0.0%	0.0%	-	-
100,000-999,999	1	-	0.0%	1.0	1		1	13.7%	0.0%	1	1
≥ 1 Million	-	-	0.0%	1.0	-		0	54.0%	0.0%	-	-
National Totals	**1,456**	**-**			**1,456**		**1,456**			**1,379**	**1,379**
Grand Totals	**7,096**	**60**			**7,308**		**7,375**			**6,097**	**6,097**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:

(A) Number of unlinked, non-purchased SW & GWUDI systems from the Third Edition Baseline Handbook, which is based on data from EPA's Safe Drinking Water Information System (USEPA 2000h).

(B) EPA assumes only membrane plants will have > 5.5 log *Cryptosporidium* treatment prior to rule promulgation. Percentage estimates are from the Economic Analysis for the Stage 2 DBPR.
(C) Estimate of the number of plants or entry points per system. Derived from 1995 Community Water System Survey data.
(E) Percent of plants triggered into *Cryptosporidium* monitoring is estimated from the modeled Occurrence Distributions.
(G) Derived from Appendix F. This number is calculated by dividing the number of plants estimated to be achieving 5.5 log treatment by the total number of plants for the size category.
(H) EPA assumes only membrane plants will have > 5.5 log *Cryptosporidium* treatment as a result of the Stage 2 DBPR. Percent estimates are from the Economic Analysis for the Stage 2 DBPR.

Exhibit D.3 Baseline Implementation and Monitoring Activities for All System Types, Based on ICRSSL Occurrence Distribution, Alternative A2

	Implementation				Monitoring for Initial Bin Classification			Future Monitoring for Re-Binning			
System Size (Population Served)	Number of Filtered Systems	Number of Unfiltered Systems	Percent of Plants with > 5.5 Log Treatment Prior to Rule Promulgation	Plants Per System	Baseline # of Plants Conducting E. coli Monitoring	Percent of Plants Triggered to Monitor for Cryptospori-dium	Baseline # of Plants Conducting Cryptospori-dium Monitoring	Percent of Plants with > 5.5 Log Treatment for LT2 Compliance	Percent of Plants with > 5.5 Log Treatment for Stage 2 Compliance	Baseline # of Plants Conducting E. coli Monitoring	Baseline # of Plants Conducting Cryptospori-dium Monitoring
	A	B	C	D	E = A*D*(1-C)	F	G = E*F+B*D	H	I	J = E*(1-H-I)	K = F*J
CWSs											
<100	341	1	3.6%	1.0	333	100%	334	3.7%	15.0%	270	270
100-499	708	4	3.6%	1.0	683	100%	687	3.7%	6.3%	614	614
500-999	425	3	3.6%	1.1	432	100%	435	3.7%	6.3%	388	388
1,000-3,299	1,076	15	3.6%	1.0	1,072	100%	1,087	11.8%	1.8%	925	925
3,300-9,999	1,052	14	3.6%	1.0	1,054	100%	1,068	11.7%	1.8%	911	911
10,000-49,999	1,010	14	0.4%	1.1	1,092		1,107	24.2%	1.5%	812	812
50,000-99,999	213	4	0.4%	1.2	264		269	24.1%	1.5%	196	196
100,000-999,999	220	4	0.4%	1.4	313		318	23.5%	1.5%	235	235
≥ 1 Million	16	1	0.4%	3.4	53		57	23.5%	1.5%	40	40
National Totals	**5,061**	**60**			**5,294**		**5,361**			**4,392**	**4,392**
NTNCWSs											
<100	180	-	3.6%	1.0	174	100%	174	3.7%	15.0%	141	141
100-499	241	-	3.6%	1.0	232	100%	232	3.7%	6.3%	209	209
500-999	81	-	3.6%	1.0	78	100%	78	3.7%	6.3%	70	70
1,000-3,299	63	-	3.6%	1.0	61	100%	61	11.8%	1.8%	52	52
3,300-9,999	13	-	3.6%	1.0	13	100%	13	11.7%	1.8%	11	11
10,000-49,999	1	-	0.4%	1.0	1		1	24.2%	1.5%	1	1
50,000-99,999	-	-	0.4%	1.0	-		0	0.0%	1.5%	-	-
100,000-999,999	-	-	0.4%	1.0	-		0	0.0%	1.5%	-	-
≥ 1 Million	-	-	0.4%	1.0	-		0	0.0%	1.5%	-	-
National Totals	**579**	**-**			**558**		**558**			**484**	**484**
TNCWSs											
<100	793	-	0.0%	1.0	793	100%	793	3.7%	0.0%	764	764
100-499	509	-	0.0%	1.0	509	100%	509	3.7%	0.0%	490	490
500-999	79	-	0.0%	1.0	79	100%	79	3.7%	0.0%	76	76
1,000-3,299	49	-	0.0%	1.0	49	100%	49	11.8%	0.0%	43	43
3,300-9,999	16	-	0.0%	1.0	16	100%	16	11.7%	0.0%	14	14
10,000-49,999	9	-	0.0%	1.0	9		9	24.2%	0.0%	7	7
50,000-99,999	-	-	0.0%	1.0	-		0	0.0%	0.0%	-	0
100,000-999,999	1	-	0.0%	1.0	1		1	11.7%	0.0%	1	1
≥ 1 Million	-	-	0.0%	1.0	-		0	46.4%	0.0%	-	-
National Totals	**1,456**	**-**			**1,456**		**1,456**			**1,395**	**1,395**
Grand Totals	**7,096**	**60**			**7,308**		**7,375**			**6,271**	**6,271**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:

(A) Number of unlinked, non-purchased SW & GWUDI systems from the Third Edition Baseline Handbook, which is based on data from EPA's Safe Drinking Water Information System (USEPA 2000h).

(B) EPA assumes only membrane plants will have > 5.5 log *Cryptosporidium* treatment prior to rule promulgation. Percentage estimates are from the Economic Analysis for the Stage 2 DBPR.
(C) Estimate of the number of plants or entry points per system. Derived from 1995 Community Water System Survey data.
(E) Percent of plants triggered into *Cryptosporidium* monitoring is estimated from the modeled Occurrence Distributions.
(G) Derived from Appendix F. This number is calculated by dividing the number of plants estimated to be achieving 5.5 log treatment by the total number of plants for the size category.

(H) EPA assumes only membrane plants will have > 5.5 log *Cryptosporidium* treatment as a result of the Stage 2 DBPR. Percent estimates are from the Economic Analysis for the Stage 2 DBPR.

Exhibit D.4 Baseline Implementation and Monitoring Activities for All System Types, by System Size
Based on ICR Occurrence Distribution, Alternative A3

	Implementation				Monitoring for Initial Bin Classification			Future Monitoring for Re-Binning			
System Size (Population Served)	Number of Filtered Systems	Number of Unfiltered Systems	Percent of Plants with > 5.5 Log Treatment Prior to Rule Promulgation	Plants Per System	Baseline # of Plants Conducting E. coli Monitoring	Percent of Plants Triggered to Monitor for Cryptospori-dium	Baseline # of Plants Conducting Cryptospori-dium Monitoring	Percent of Plants with > 5.5 Log Treatment for LT2 Compliance	Percent of Plants with > 5.5 Log Treatment for Stage 2 Compliance	Baseline # of Plants Conducting E. coli Monitoring	Baseline # of Plants Conducting Cryptospori-dium Monitoring
	A	B	C	D	E = A*D*(1-C)	F	G = E*F+B*D	H	I	J = E*(1-H-I)	K = F*J
CWSs											
<100	341	1	3.6%	1.0	333	35%	117	5.3%	15.0%	265	92
100-499	708	4	3.6%	1.0	683	35%	242	5.3%	6.3%	603	210
500-999	425	3	3.6%	1.1	432	35%	153	5.3%	6.3%	382	133
1,000-3,299	1,076	15	3.6%	1.0	1,072	35%	388	9.7%	1.8%	948	330
3,300-9,999	1,052	14	3.6%	1.0	1,054	35%	381	9.5%	1.8%	934	325
10,000-49,999	1,010	14	0.4%	1.1	1,092		1,107	30.4%	1.5%	744	744
50,000-99,999	213	4	0.4%	1.2	264		269	30.3%	1.5%	180	180
100,000-999,999	220	4	0.4%	1.4	313		318	29.7%	1.5%	215	215
≥ 1 Million	16	1	0.4%	3.4	53		57	29.7%	1.5%	37	37
National Totals	**5,061**	**60**			**5,294**		**3,032**			**4,309**	**2,266**
NTNCWSs											
<100	180	-	3.6%	1.0	174	35%	60	5.3%	15.0%	138	48
100-499	241	-	3.6%	1.0	232	35%	81	5.3%	6.3%	205	71
500-999	81	-	3.6%	1.0	78	35%	27	5.3%	6.3%	69	24
1,000-3,299	63	-	3.6%	1.0	61	35%	21	9.7%	1.8%	54	19
3,300-9,999	13	-	3.6%	1.0	13	35%	4	9.5%	1.8%	11	4
10,000-49,999	1	-	0.4%	1.0	1		1	30.4%	1.5%	1	1
50,000-99,999	-	-	0.4%	1.0	-		0	0.0%	1.5%	-	-
100,000-999,999	-	-	0.4%	1.0	-		0	0.0%	1.5%	-	-
≥ 1 Million	-	-	0.4%	1.0	-		0	0.0%	1.5%	-	-
National Totals	**579**	**-**			**558**		**195**			**478**	**167**
TNCWSs											
<100	793	-	0.0%	1.0	793	35%	276	5.3%	0.0%	751	261
100-499	509	-	0.0%	1.0	509	35%	177	5.3%	0.0%	482	168
500-999	79	-	0.0%	1.0	79	35%	27	5.3%	0.0%	75	26
1,000-3,299	49	-	0.0%	1.0	49	35%	17	9.7%	0.0%	44	15
3,300-9,999	16	-	0.0%	1.0	16	35%	6	9.5%	0.0%	14	5
10,000-49,999	9	-	0.0%	1.0	9		9	30.4%	0.0%	6	6
50,000-99,999	-	-	0.0%	1.0	-		0	0.0%	0.0%	-	0
100,000-999,999	1	-	0.0%	1.0	1		1	14.8%	0.0%	1	1
≥ 1 Million	-	-	0.0%	1.0	-		0	58.6%	0.0%	-	-
National Totals	**1,456**	**-**			**1,456**		**513**			**1,374**	**483**
Grand Totals	**7,096**	**60**			**7,308**		**3,741**			**6,161**	**2,916**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:

(A) Number of unlinked, non-purchased SW & GWUDI systems from the Third Edition Baseline Handbook, which is based on data from EPA's Safe Drinking Water Information System (USEPA 2000h).

(B) EPA assumes only membrane plants will have > 5.5 log *Cryptosporidium* treatment prior to rule promulgation. Percentage estimates are from the Economic Analysis for the Stage 2 DBPR.
(C) Estimate of the number of plants or entry points per system. Derived from 1995 Community Water System Survey data.
(E) Percent of plants triggered into *Cryptosporidium* monitoring is estimated from the modeled Occurrence Distributions.
(G) Derived from Appendix F. This number is calculated by dividing the number of plants estimated to be achieving 5.5 log treatment by the total number of plants for the size category.
(H) EPA assumes only membrane plants will have > 5.5 log *Cryptosporidium* treatment as a result of the Stage 2 DBPR. Percent estimates are from the Economic Analysis for the Stage 2 DBPR.

Exhibit D.5 Baseline Implementation and Monitoring Activities for All System Types, Based on ICRSSM Occurrence Distribution, Alternative A3

	Implementation				Monitoring for Initial Bin Classification			Future Monitoring for Re-Binning			
System Size (Population Served)	Number of Filtered Systems	Number of Unfiltered Systems	Percent of Plants with > 5.5 Log Treatment Prior to Rule Promulgation	Plants Per System	Baseline # of Plants Conducting E. coli Monitoring	Percent of Plants Triggered to Monitor for Cryptosporidium	Baseline # of Plants Conducting Cryptosporidium Monitoring	Percent of Plants with > 5.5 Log Treatment for LT2 Compliance	Percent of Plants with > 5.5 Log Treatment for Stage 2 Compliance	Baseline # of Plants Conducting E. coli Monitoring	Baseline # of Plants Conducting Cryptosporidium Monitoring
	A	B	C	D	E = A*D*(1-C)	F	G = E*F+B*D	H	I	J = E*(1-H-I)	K = F*J
CWSs											
<100	341	1	3.6%	1.0	333	27%	92	2.9%	15.0%	273	74
100-499	708	4	3.6%	1.0	683	27%	190	2.9%	6.3%	619	168
500-999	425	3	3.6%	1.1	432	27%	121	2.9%	6.3%	392	107
1,000-3,299	1,076	15	3.6%	1.0	1072	27%	307	4.1%	1.8%	1008	274
3,300-9,999	1,052	14	3.6%	1.0	1054	27%	301	3.9%	1.8%	993	270
10,000-49,999	1,010	14	0.4%	1.1	1092		1107	23.3%	1.5%	821	821
50,000-99,999	213	4	0.4%	1.2	264		269	23.3%	1.5%	199	199
100,000-999,999	220	4	0.4%	1.4	313		318	22.7%	1.5%	237	237
≥ 1 Million	16	1	0.4%	3.4	53		57	22.7%	1.5%	41	41
National Totals	**5,061**	**60**			**5294**		**2761**			**4,582**	**2191**
NTNCWSs											
<100	180	0	3.6%	1.0	174	27%	47	2.9%	15.0%	142	39
100-499	241	0	3.6%	1.0	232	27%	63	2.9%	6.3%	211	57
500-999	81	0	3.6%	1.0	78	27%	21	2.9%	6.3%	71	19
1,000-3,299	63	0	3.6%	1.0	61	27%	17	4.1%	1.8%	57	16
3,300-9,999	13	0	3.6%	1.0	13	27%	3	3.9%	1.8%	12	3
10,000-49,999	1	0	0.4%	1.0	1		1	23.3%	1.5%	1	1
50,000-99,999	-	0	0.4%	1.0			0	0.0%	1.5%	-	0
100,000-999,999	-	0	0.4%	1.0			0	0.0%	1.5%	-	0
≥ 1 Million	-	0	0.4%	1.0			0	0.0%	1.5%	-	0
National Totals	**579**				**558**		**153**			**494**	**135**
TNCWSs											
<100	793	0	0.0%	1.0	793	27%	216	2.9%	0.0%	770	209
100-499	509	0	0.0%	1.0	509	27%	138	2.9%	0.0%	494	134
500-999	79	0	0.0%	1.0	79	27%	21	2.9%	0.0%	77	21
1,000-3,299	49	0	0.0%	1.0	49	27%	13	4.1%	0.0%	47	13
3,300-9,999	16	0	0.0%	1.0	16	27%	4	3.9%	0.0%	15	4
10,000-49,999	9	0	0.0%	1.0	9		9	23.3%	0.0%	7	7
50,000-99,999	-	0	0.0%	1.0			0	0.0%	0.0%	0	0
100,000-999,999	1	0	0.0%	1.0	1		1	11.4%	0.0%	1	1
≥ 1 Million	-	0	0.0%	1.0			0	44.9%	0.0%	-	0
National Totals	**1,456**				**1456**		**403**			**1,411**	**389**
Grand Totals	**7,096**	**60**			**7308**		**3317**			**6,487**	**2715**

Notes:

Detail may not add exactly to totals due to independent rounding.

Sources:

(A) Number of unlinked, non-purchased SW & GWUDI systems from the Third Edition Baseline Handbook, which is based on data from EPA's Safe Drinking Water Information System (USEPA 2000h).

(B) EPA assumes only membrane plants will have > 5.5 log *Cryptosporidium* treatment prior to rule promulgation. Percentage estimates are from the Economic Analysis for the Stage 2 DBPR.

(C) Estimate of the number of plants or entry points per system. Derived from 1995 Community Water System Survey data.

(E) Percent of plants triggered into *Cryptosporidium* monitoring is estimated from the modeled Occurrence Distributions.

(G) Derived from Appendix F. This number is calculated by dividing the number of plants estimated to be achieving 5.5 log treatment by the total number of plants for the size category.

(H) EPA assumes only membrane plants will have > 5.5 log *Cryptosporidium* treatment as a result of the Stage 2 DBPR. Percent estimates are from the Economic Analysis for the Stage 2 DBPR.

Exhibit D.6 Baseline Implementation and Monitoring Activities for All System Types, Based on ICRSSL Occurrence Distribution, Alternative A3

System Size (Population Served)	Implementation				Monitoring for Initial Bin Classification			Future Monitoring for Re-Binning			
	Number of Filtered Systems	Number of Unfiltered Systems	Percent of Plants with > 5.5 Log Treatment Prior to Rule Promulgation	Plants Per System	Baseline # of Plants Conducting E. coli Monitoring	Percent of Plants Triggered to Monitor for Cryptosporidium	Baseline # of Plants Conducting Cryptosporidium Monitoring	Percent of Plants with > 5.5 Log Treatment for LT2 Compliance	Percent of Plants with > 5.5 Log Treatment for Stage 2 Compliance	Baseline # of Plants Conducting E. coli Monitoring	Baseline # of Plants Conducting Cryptosporidium Monitoring
	A	B	C	D	E = A*D*(1-C)	F	G = E*F+B*D	H	I	J = E*(1-H-I)	K = F*J
CWSs											
<100	341	1	3.6%	1.0	333	22%	75	2.2%	15.0%	275	62
100-499	708	4	3.6%	1.0	683	22%	157	2.2%	6.3%	624	140
500-999	425	3	3.6%	1.1	432	22%	100	2.2%	6.3%	395	88
1,000-3,299	1,076	15	3.6%	1.0	1,072	22%	255	2.6%	1.8%	1,024	229
3,300-9,999	1,052	14	3.6%	1.0	1,054	22%	250	2.5%	1.8%	1,008	225
10,000-49,999	1,010	14	0.4%	1.1	1,092		1,107	19.1%	1.5%	867	867
50,000-99,999	213	4	0.4%	1.2	264		269	19.1%	1.5%	210	210
100,000-999,999	220	4	0.4%	1.4	313		318	18.6%	1.5%	250	250
≥ 1 Million	16	1	0.4%	3.4	53		57	18.6%	1.5%	43	43
National Totals	**5,061**	**60**			**5,294**		**2,588**			**4,696**	**2,114**
NTNCWSs											
<100	180	-	3.6%	1.0	174	22%	39	2.2%	15.0%	144	32
100-499	241	-	3.6%	1.0	232	22%	52	2.2%	6.3%	212	47
500-999	81	-	3.6%	1.0	78	22%	17	2.2%	6.3%	71	16
1,000-3,299	63	-	3.6%	1.0	61	22%	14	2.6%	1.8%	58	13
3,300-9,999	13	-	3.6%	1.0	13	22%	3	2.5%	1.8%	12	3
10,000-49,999	1	-	0.4%	1.0	1		1	19.1%	1.5%	1	1
50,000-99,999	-	-	0.4%	1.0	-		0	0.0%	1.5%	-	-
100,000-999,999	-	-	0.4%	1.0	-		0	0.0%	1.5%	-	-
≥ 1 Million	-	-	0.4%	1.0	-		0	0.0%	1.5%	-	-
National Totals	**579**	**-**			**558**		**126**			**498**	**112**
TNCWSs											
<100	793	-	0.0%	1.0	793	22%	177	2.2%	0.0%	775	173
100-499	509	-	0.0%	1.0	509	22%	114	2.2%	0.0%	498	111
500-999	79	-	0.0%	1.0	79	22%	18	2.2%	0.0%	77	17
1,000-3,299	49	-	0.0%	1.0	49	22%	11	2.6%	0.0%	48	11
3,300-9,999	16	-	0.0%	1.0	16	22%	4	2.5%	0.0%	16	3
10,000-49,999	9	-	0.0%	1.0	9		9	19.1%	0.0%	7	7
50,000-99,999	-	-	0.0%	1.0	-		0	0.0%	0.0%	-	0
100,000-999,999	1	-	0.0%	1.0	1		1	9.3%	0.0%	1	1
≥ 1 Million	-	-	0.0%	1.0	-		0	36.7%	0.0%	-	-
National Totals	**1,456**	**-**			**1,456**		**333**			**1,421**	**324**
Grand Totals	**7,096**	**60**			**7,308**		**3,047**			**6,615**	**2,550**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:

(A) Number of unlinked, non-purchased SW & GWUDI systems from the Third Edition Baseline Handbook, which is based on data from EPA's Safe Drinking Water Information System (USEPA 2000h).

(B) EPA assumes only membrane plants will have > 5.5 log *Cryptosporidium* treatment prior to rule promulgation. Percentage estimates are from the Economic Analysis for the Stage 2 DBPR.
(C) Estimate of the number of plants or entry points per system. Derived from 1995 Community Water System Survey data.
(E) Percent of plants triggered into *Cryptosporidium* monitoring is estimated from the modeled Occurrence Distributions.
(G) Derived from Appendix F. This number is calculated by dividing the number of plants estimated to be achieving 5.5 log treatment by the total number of plants for the size category.
(H) EPA assumes only membrane plants will have > 5.5 log *Cryptosporidium* treatment as a result of the Stage 2 DBPR. Percent estimates are from the Economic Analysis for the Stage 2 DBPR.

Exhibit D.7 Baseline Implementation and Monitoring Activities for All System Types, Based on ICR Occurrence Distribution, Alternative A4

	Implementation				Monitoring for Initial Bin Classification			Future Monitoring for Re-Binning			
System Size (Population Served)	Number of Filtered Systems	Number of Unfiltered Systems	Percent of Plants with > 5.5 Log Treatment Prior to Rule Promulgation	Plants Per System	Baseline # of Plants Conducting E. coli Monitoring	Percent of Plants Triggered to Monitor for Cryptosporidium	Baseline # of Plants Conducting Cryptosporidium Monitoring	Percent of Plants with > 5.5 Log Treatment for LT2 Compliance	Percent of Plants with > 5.5 Log Treatment for Stage 2 Compliance	Baseline # of Plants Conducting E. coli Monitoring	Baseline # of Plants Conducting Cryptosporidium Monitoring
	A	B	C	D	E = A*D*(1-C)	F	G = E*F+B*D	H	I	J = E*(1-H-I)	K = F*J
CWSs											
<100	341	1	3.6%	1.0	333	30%	102	2.2%	15.0%	275	83
100-499	708	4	3.6%	1.0	683	30%	211	2.2%	6.3%	624	189
500-999	425	3	3.6%	1.1	432	30%	134	2.2%	6.3%	395	120
1,000-3,299	1,076	15	3.6%	1.0	1,072	30%	340	2.0%	1.8%	1,030	312
3,300-9,999	1,052	14	3.6%	1.0	1,054	30%	334	2.0%	1.8%	1,014	307
10,000-49,999	1,010	14	0.4%	1.1	1,092		1,107	13.7%	1.5%	926	926
50,000-99,999	213	4	0.4%	1.2	264		269	13.7%	1.5%	224	224
100,000-999,999	220	4	0.4%	1.4	313		318	13.0%	1.5%	267	267
≥ 1 Million	16	1	0.4%	3.4	53		57	13.0%	1.5%	46	46
National Totals	**5,061**	**60**			**5,294**		**2,872**			**4,801**	**2,475**
NTNCWSs											
<100	180	-	3.6%	1.0	174	30%	53	2.2%	15.0%	144	44
100-499	241	-	3.6%	1.0	232	30%	70	2.2%	6.3%	213	64
500-999	81	-	3.6%	1.0	78	30%	24	2.2%	6.3%	71	22
1,000-3,299	63	-	3.6%	1.0	61	30%	18	2.0%	1.8%	58	18
3,300-9,999	13	-	3.6%	1.0	13	30%	4	2.0%	1.8%	12	4
10,000-49,999	1	-	0.4%	1.0	1		1	13.7%	1.5%	1	1
50,000-99,999	-	-	0.4%	1.0	-		0	0.0%	1.5%	-	-
100,000-999,999	-	-	0.4%	1.0	-		0	0.0%	1.5%	-	-
≥ 1 Million	-	-	0.4%	1.0	-		0	0.0%	1.5%	-	-
National Totals	**579**	**-**			**558**		**170**			**499**	**152**
TNCWSs											
<100	793	-	0.0%	1.0	793	30%	240	2.2%	0.0%	776	235
100-499	509	-	0.0%	1.0	509	30%	154	2.2%	0.0%	498	151
500-999	79	-	0.0%	1.0	79	30%	24	2.2%	0.0%	77	23
1,000-3,299	49	-	0.0%	1.0	49	30%	15	2.0%	0.0%	48	15
3,300-9,999	16	-	0.0%	1.0	16	30%	5	2.0%	0.0%	16	5
10,000-49,999	9	-	0.0%	1.0	9		9	13.7%	0.0%	8	8
50,000-99,999	-	-	0.0%	1.0	-		0	0.0%	0.0%	-	0
100,000-999,999	1	-	0.0%	1.0	1		1	6.5%	0.0%	1	1
≥ 1 Million	-	-	0.0%	1.0	-		0	25.8%	0.0%	-	-
National Totals	**1,456**	**-**			**1,456**		**448**			**1,423**	**437**
Grand Totals	**7,096**	**60**			**7,308**		**3,490**			**6,724**	**3,064**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:

(A) Number of unlinked, non-purchased SW & GWUDI systems from the Third Edition Baseline Handbook, which is based on data from EPA's Safe Drinking Water Information System (USEPA 2000h).

(B) EPA assumes only membrane plants will have > 5.5 log *Cryptosporidium* treatment prior to rule promulgation. Percentage estimates are from the Economic Analysis for the Stage 2 DBPR.
(C) Estimate of the number of plants or entry points per system. Derived from 1995 Community Water System Survey data.
(E) Percent of plants triggered into *Cryptosporidium* monitoring is estimated from the modeled Occurrence Distributions.
(G) Derived from Appendix F. This number is calculated by dividing the number of plants estimated to be achieving 5.5 log treatment by the total number of plants for the size category.

(H) EPA assumes only membrane plants will have > 5.5 log *Cryptosporidium* treatment as a result of the Stage 2 DBPR. Percent estimates are from the Economic Analysis for the Stage 2 DBPR.

Exhibit D.8 Baseline Implementation and Monitoring Activities for All System Types, Based on ICRSSM Occurrence Distribution, Alternative A4

	Implementation				Monitoring for Initial Bin Classification			Future Monitoring for Re-Binning			
System Size (Population Served)	Number of Filtered Systems	Number of Unfiltered Systems	Percent of Plants with > 5.5 Log Treatment Prior to Rule Promulgation	Plants Per System	Baseline # of Plants Conducting E. coli Monitoring	Percent of Plants Triggered to Monitor for Cryptosporidium	Baseline # of Plants Conducting Cryptosporidium Monitoring	Percent of Plants with > 5.5 Log Treatment for LT2 Compliance	Percent of Plants with > 5.5 Log Treatment for Stage 2 Compliance	Baseline # of Plants Conducting E. coli Monitoring	Baseline # of Plants Conducting Cryptosporidium Monitoring
	A	B	C	D	E = A*D*(1-C)	F	G = E*F+B*D	H	I	J = E*(1-H-I)	K = F*J
CWSs											
<100	341	1	3.6%	1.0	333	22%	73	1.4%	15.0%	278	60
100-499	708	4	3.6%	1.0	683	22%	151	1.4%	6.3%	630	135
500-999	425	3	3.6%	1.1	432	22%	96	1.4%	6.3%	398	86
1,000-3,299	1,076	15	3.6%	1.0	1,072	22%	246	1.3%	1.8%	1,038	223
3,300-9,999	1,052	14	3.6%	1.0	1,054	22%	241	1.3%	1.8%	1,021	219
10,000-49,999	1,010	14	0.4%	1.1	1,092		1,107	7.9%	1.5%	990	990
50,000-99,999	213	4	0.4%	1.2	264		269	7.9%	1.5%	239	239
100,000-999,999	220	4	0.4%	1.4	313		318	7.4%	1.5%	285	285
≥ 1 Million	16	1	0.4%	3.4	53		57	7.4%	1.5%	49	49
National Totals	**5,061**	**60**			**5,294**		**2,557**			**4,927**	**2,286**
NTNCWSs											
<100	180	-	3.6%	1.0	174	22%	37	1.4%	15.0%	145	31
100-499	241	-	3.6%	1.0	232	22%	50	1.4%	6.3%	214	46
500-999	81	-	3.6%	1.0	78	22%	17	1.4%	6.3%	72	15
1,000-3,299	63	-	3.6%	1.0	61	22%	13	1.3%	1.8%	59	13
3,300-9,999	13	-	3.6%	1.0	13	22%	3	1.3%	1.8%	12	3
10,000-49,999	1	-	0.4%	1.0	1		1	7.9%	1.5%	1	1
50,000-99,999	-	-	0.4%	1.0	-		0	0.0%	1.5%	-	-
100,000-999,999	-	-	0.4%	1.0	-		0	0.0%	1.5%	-	-
≥ 1 Million	-	-	0.4%	1.0	-		0	0.0%	1.5%	-	-
National Totals	**579**	**-**			**558**		**121**			**503**	**109**
TNCWSs											
<100	793	-	0.0%	1.0	793	22%	170	1.4%	0.0%	782	168
100-499	509	-	0.0%	1.0	509	22%	109	1.4%	0.0%	502	108
500-999	79	-	0.0%	1.0	79	22%	17	1.4%	0.0%	78	17
1,000-3,299	49	-	0.0%	1.0	49	22%	11	1.3%	0.0%	48	10
3,300-9,999	16	-	0.0%	1.0	16	22%	3	1.3%	0.0%	16	3
10,000-49,999	9	-	0.0%	1.0	9		9	7.9%	0.0%	8	8
50,000-99,999	-	-	0.0%	1.0	-		0	0.0%	0.0%	-	0
100,000-999,999	1	-	0.0%	1.0	1		1	3.7%	0.0%	1	1
≥ 1 Million	-	-	0.0%	1.0	-		0	14.6%	0.0%	-	-
National Totals	**1,456**	**-**			**1,456**		**321**			**1,435**	**316**
Grand Totals	**7,096**	**60**			**7,308**		**2,999**			**6,865**	**2,711**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:

(A) Number of unlinked, non-purchased SW & GWUDI systems from the Third Edition Baseline Handbook, which is based on data from EPA's Safe Drinking Water Information System (USEPA 2000h).

(B) EPA assumes only membrane plants will have > 5.5 log *Cryptosporidium* treatment prior to rule promulgation. Percentage estimates are from the Economic Analysis for the Stage 2 DBPR.
(C) Estimate of the number of plants or entry points per system. Derived from 1995 Community Water System Survey data.
(E) Percent of plants triggered into *Cryptosporidium* monitoring is estimated from the modeled Occurrence Distributions.
(G) Derived from Appendix F. This number is calculated by dividing the number of plants estimated to be achieving 5.5 log treatment by the total number of plants for the size category.

(H) EPA assumes only membrane plants will have > 5.5 log *Cryptosporidium* treatment as a result of the Stage 2 DBPR. Percent estimates are from the Economic Analysis for the Stage 2 DBPR.

Exhibit D.9 Baseline Implementation and Monitoring Activities for All System Types, Based on ICRSSL Occurrence Distribution, Alternative A4

	Implementation				Monitoring for Initial Bin Classification			Future Monitoring for Re-Binning			
System Size (Population Served)	Number of Filtered Systems	Number of Unfiltered Systems	Percent of Plants with > 5.5 Log Treatment Prior to Rule Promulgation	Plants Per System	Baseline # of Plants Conducting E. coli Monitoring	Percent of Plants Triggered to Monitor for Cryptospori-dium	Baseline # of Plants Conducting Cryptospori-dium Monitoring	Percent of Plants with > 5.5 Log Treatment for LT2 Compliance	Percent of Plants with > 5.5 Log Treatment for Stage 2 Compliance	Baseline # of Plants Conducting E. coli Monitoring	Baseline # of Plants Conducting Cryptospori-dium Monitoring
	A	B	C	D	E = A*D*(1-C)	F	G = E*F+B*D	H	I	J = E*(1-H-I)	K = F*J
CWSs											
<100	341	1	3.6%	1.0	333	16%	54	1.0%	15.0%	279	45
100-499	708	4	3.6%	1.0	683	16%	113	1.0%	6.3%	632	101
500-999	425	3	3.6%	1.1	432	16%	72	1.0%	6.3%	400	64
1,000-3,299	1,076	15	3.6%	1.0	1,072	16%	187	0.9%	1.8%	1,042	167
3,300-9,999	1,052	14	3.6%	1.0	1,054	16%	183	0.9%	1.8%	1,025	164
10,000-49,999	1,010	14	0.4%	1.1	1,092		1,107	5.4%	1.5%	1,017	1017
50,000-99,999	213	4	0.4%	1.2	264		269	5.4%	1.5%	246	246
100,000-999,999	220	4	0.4%	1.4	313		318	5.0%	1.5%	292	292
≥ 1 Million	16	1	0.4%	3.4	53		57	5.0%	1.5%	50	50
National Totals	**5,061**	**60**			**5,294**		**2,361**			**4,984**	**2,146**
NTNCWSs											
<100	180	-	3.6%	1.0	174	16%	28	1.0%	15.0%	146	23
100-499	241	-	3.6%	1.0	232	16%	37	1.0%	6.3%	215	34
500-999	81	-	3.6%	1.0	78	16%	12	1.0%	6.3%	72	12
1,000-3,299	63	-	3.6%	1.0	61	16%	10	0.9%	1.8%	59	9
3,300-9,999	13	-	3.6%	1.0	13	16%	2	0.9%	1.8%	12	2
10,000-49,999	1	-	0.4%	1.0	1		1	5.4%	1.5%	1	1
50,000-99,999	-	-	0.4%	1.0	-		0	0.0%	1.5%	-	-
100,000-999,999	-	-	0.4%	1.0	-		0	0.0%	1.5%	-	-
≥ 1 Million	-	-	0.4%	1.0	-		0	0.0%	1.5%	-	-
National Totals	**579**	**-**			**558**		**90**			**505**	**82**
TNCWSs											
<100	793	-	0.0%	1.0	793	16%	127	1.0%	0.0%	785	126
100-499	509	-	0.0%	1.0	509	16%	81	1.0%	0.0%	504	81
500-999	79	-	0.0%	1.0	79	16%	13	1.0%	0.0%	78	13
1,000-3,299	49	-	0.0%	1.0	49	16%	8	0.9%	0.0%	49	8
3,300-9,999	16	-	0.0%	1.0	16	16%	3	0.9%	0.0%	16	3
10,000-49,999	9	-	0.0%	1.0	9		9	5.4%	0.0%	9	9
50,000-99,999	-	-	0.0%	1.0	-		0	0.0%	0.0%	-	0
100,000-999,999	1	-	0.0%	1.0	1		1	2.5%	0.0%	1	1
≥ 1 Million	-	-	0.0%	1.0	-		0	9.9%	0.0%	-	-
National Totals	**1,456**	**-**			**1,456**		**241**			**1,441**	**238**
Grand Totals	**7,096**	**60**			**7,308**		**2,692**			**6,930**	**2,466**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:

(A) Number of unlinked, non-purchased SW & GWUDI systems from the Third Edition Baseline Handbook, which is based on data from EPA's Safe Drinking Water Information System (USEPA 2000h).

(B) EPA assumes only membrane plants will have > 5.5 log *Cryptosporidium* treatment prior to rule promulgation. Percentage estimates are from the Economic Analysis for the Stage 2 DBPR.
(C) Estimate of the number of plants or entry points per system. Derived from 1995 Community Water System Survey data.
(E) Percent of plants triggered into *Cryptosporidium* monitoring is estimated from the modeled Occurrence Distributions.
(G) Derived from Appendix F. This number is calculated by dividing the number of plants estimated to be achieving 5.5 log treatment by the total number of plants for the size category.

(H) EPA assumes only membrane plants will have > 5.5 log *Cryptosporidium* treatment as a result of the Stage 2 DBPR. Percent estimates are from the Economic Analysis for the Stage 2 DBPR.

Exhibit D.10 Cost and Burden Estimates for Rule Implementation Activities for All Regulatory Alternatives

System Size (Population Served)	Read Hours per PWS	Train Hours per PWS	Total Hours per PWS	Cost per Labor Hour	Baseline # of Systems Conducting Implementa-tion	Total Cost	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C = A + B	D	E	F = C*D*E	G = C*E	H = G/2080
CWSs								
<100	4	4	8	$ 21.44	342	$ 58,660	2,736	1.3
100-499	4	4	8	23.09	712	131,521	5,696	2.7
500-999	4	4	8	30.03	428	102,830	3,424	1.6
1,000-3,299	4	4	8	30.03	1,091	262,119	8,728	4.2
3,300-9,999	4	4	8	30.51	1,066	260,206	8,528	4.1
10,000-49,999	4	4	8	31.08	1,024	254,607	8,192	3.9
50,000-99,999	4	5	9	31.08	217	60,699	1,953	0.9
100,000-999,999	4	5	9	35.25	224	71,060	2,016	1.0
≥ 1 Million	4	5	9	35.25	17	5,393	153	0.1
National Totals					**5,121**	**$ 1,207,095**	**41,426**	**19.9**
NTNCWSs								
<100	4	4	8	$ 21.44	180	$ 30,874	1,440	0.7
100-499	4	4	8	23.09	241	44,518	1,928	0.9
500-999	4	4	8	30.03	81	19,461	648	0.3
1,000-3,299	4	4	8	30.03	63	15,136	504	0.2
3,300-9,999	4	4	8	30.51	13	3,173	104	0.1
10,000-49,999	4	4	8	31.08	1	249	8	0.0
50,000-99,999	4	5	9	31.08	-	-	-	-
100,000-999,999	4	5	9	35.25	-	-	-	-
≥ 1 Million	4	5	9	35.25	-	-	-	-
National Totals					**579**	**$ 113,410**	**4,632**	**2.2**
TNCWSs								
<100	4	4	8	$ 21.44	793	$ 136,015	6,344	3.1
100-499	4	4	8	23.09	509	94,022	4,072	2.0
500-999	4	4	8	30.03	79	18,980	632	0.3
1,000-3,299	4	4	8	30.03	49	11,773	392	0.2
3,300-9,999	4	4	8	30.51	16	3,906	128	0.1
10,000-49,999	4	4	8	31.08	9	2,238	72	0.0
50,000-99,999	4	5	9	31.08	-	-	-	-
100,000-999,999	4	5	9	35.25	1	317	9	0.0
≥ 1 Million	4	5	9	35.25	-	-	-	-
National Totals					**1,456**	**$ 267,251**	**11,649**	**5.6**
Grand Totals					**7,156**	**$ 1,587,756**	**57,707**	**27.7**

Notes:

Detail may not add exactly to totals due to independent rounding.

Sources:

(A & B) Burden estimates for each activity are based on EPA experience with similar rules.

(D) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics (BLS) data.

(E) Taken from "Baseline for Implementation and Monitoring Activities."

Exhibit D.11 State Primacy Agency Cost and Burden Estimates for Rule Implementation Activities

Implementation Activities	Cost per Labor Hour	FTEs per State	Hours per State	Cost Per State
	A	B	C = B*2080	D = A*C
Regulation Adoption and Program Development	$ 33.60	0.50	1,040	$ 34,949
Training State Staff	33.60	0.25	520	17,475
Training PWS Staff and Technical Assistants	33.60	1.00	2,080	69,898
Updating Data Management System	33.60	0.10	208	6,990
Public Notification	33.60	0.10	208	6,990
Totals per State		**1.95**	**4,056**	**$ 136,301**
National Totals (57 States/Primacy Agencies)		**111.15**	**231,192**	**$ 7,769,165**

Notes:
Detail may not add to totals due to independent rounding.
All States/Primacy Agencies are assumed to incur some costs for each activity.
1 FTE = 2,080 hours (40 hours/week; 52 weeks/year
Sources:
(A) State labor rates based on the State Workload Model, updated to current dollar values.
(B) FTEs per State/Primacy Agency based on EPA experience with previous regulations.

Exhibit D.12 Labor Hours and Cost Estimates to Plants Associated with *E. coli* Monitoring for All Regulatory Alternatives

System Size (Population Served)	Baseline # of Plants Conducting *E. coli* Monitoring	Sampling				Sample Analysis							Total Cost	Total Burden (Hours)
		# of *E. coli* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Commercial Analysis Cost per Sample (Includes Shipping)	Utility Analysis Hours per Sample (Labor)	Utility Analysis Cost per Sample (O&M)	Utility Analysis Cost per Sample	Percent Utilities with *E. coli* Analysis Capabilities	Total Laboratory Analysis Cost (Labor)	Total Laboratory Analysis Cost (O&M)		
	A	B	C	D	E = A*B*C*D	F	G	H	I = H+G*D	J	K = D*G*J*A*B	L = F*A*B*(1-J)+H*A*B*J	M = E+K+L	N = A*B*C+A*B*G*J
CWSs														
<100	333	26	0.25	$ 21.44	$ 46,363	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 23,181	$ 476,343	$ 545,888	3,244
100-499	683	26	0.25	23.09	102,435	70.00	0.5	9.46	21.00	25%	51,217	973,574	1,127,227	6,654
500-999	432	26	0.25	24.74	69,402	70.00	0.5	8.63	21.00	25%	34,701	613,311	717,414	4,208
1,000-3,299	1,072	26	0.25	24.74	172,310	70.00	0.5	8.63	21.00	25%	86,155	1,522,723	1,781,189	10,447
3,300-9,999	1,054	26	0.25	25.34	173,543	70.00	0.5	8.33	21.00	25%	86,771	1,495,248	1,755,562	10,273
10,000-49,999	1,092	24	0.25	26.05	170,651	70.00	0.5	7.98	21.00	75%	255,976	615,293	1,041,920	16,377
50,000-99,999	264	24	0.25	26.05	41,256	70.00	0.5	7.98	21.00	75%	61,884	148,752	251,893	3,959
100,000-999,999	313	24	0.25	31.26	58,657	70.00	0.5	5.37	21.00	100%	117,314	40,305	216,276	5,629
≥ 1 Million	53	24	0.25	31.26	10,025	70.00	0.5	5.37	21.00	100%	20,050	6,889	36,964	962
National Totals	**5,294**			$ -	**$ 844,641**						**$ 737,251**	**$ 5,892,439**	**$ 7,474,332**	**61,754**
NTNCWSs														
<100	174	26	0.25	$ 21.44	$ 24,182	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 12,091	$ 248,449	$ 284,722	1,692
100-499	232	26	0.25	$ 23.09	34,868	70.00	0.5	9.46	21.00	25%	17,434	331,400	383,703	2,265
500-999	78	26	0.25	$ 24.74	12,557	70.00	0.5	8.63	21.00	25%	6,278	110,965	129,800	761
1,000-3,299	61	26	0.25	$ 24.74	9,766	70.00	0.5	8.63	21.00	25%	4,883	86,306	100,955	592
3,300-9,999	13	26	0.25	$ 25.34	2,064	70.00	0.5	8.33	21.00	25%	1,032	17,785	20,881	122
10,000-49,999	1	24	0.25	$ 26.05	156	70.00	0.5	7.98	21.00	75%	234	561	951	15
50,000-99,999	-	24	0.25	$ 26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	-	24	0.25	$ 31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
≥ 1 Million	-	24	0.25	$ 31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**558**			$ -	**$ 83,593**						**$ 41,952**	**$ 795,467**	**$ 921,012**	**5,448**
TNCWSs														
<100	793	26	0.25	$ 21.44	$ 110,512	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 55,256	$ 1,135,433	$ 1,301,202	7,732
100-499	509	26	0.25	23.09	76,393	70.00	0.5	9.46	21.00	25%	38,197	726,067	840,657	4,963
500-999	79	26	0.25	24.74	12,704	70.00	0.5	8.63	21.00	25%	6,352	112,267	131,322	770
1,000-3,299	49	26	0.25	24.74	7,880	70.00	0.5	8.63	21.00	25%	3,940	69,634	81,453	478
3,300-9,999	16	26	0.25	25.34	2,635	70.00	0.5	8.33	21.00	25%	1,318	22,706	26,659	156
10,000-49,999	9	24	0.25	26.05	1,407	70.00	0.5	7.98	21.00	75%	2,110	5,072	8,589	135
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	1	24	0.25	31.26	188	70.00	0.5	5.37	21.00	100%	375	129	692	18
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**1,456**			$ -	**$ 211,719**						**$ 107,548**	**$ 2,071,307**	**$ 2,390,574**	**14,252**
Grand Totals	**7,308**			$ -	**$ 1,139,953**						**$ 886,751**	**$ 8,759,214**	**$ 10,785,918**	**81,453**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities."
(B) Bi-weekly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) DynCorp study, Kevin Connell, June 2002.
(G) Based on expert opinion.
(H) The amount left over after the cost of half an hour of labor is subtracted from the cost of utility analysis provided in Column I.
(I) DynCorp study, Kevin Connell, December 2000.

Exhibit D.13a Total Cost Estimates for *Cryptosporidium* Monitoring for All System Types, by System Size
Based on ICR Occurrence Distribution, Alternative A2

System Size (Population Served)	Baseline # of Plants Monitoring *Cryptosporidium*	Sampling				Sample Analysis		Total Cost	Total Burden (Hours)	Total Burden (FTEs)	Responses
		# of *Crypto-sporidium* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Cost per Sample	Total Laboratory Analysis Cost (O&M)				
	A	B	C	D	E = A*B*C*D	F	G = A*B*F	H = E+G	I = A*B*C	J = I/2080	K = A*B
CWSs											
<100	334	26	0.5	$ 21.44	$ 93,008	$ 529.50	$ 4,593,992	$ 4,686,999	4,338	2.1	8,676
100-499	687	26	0.5	23.09	206,070	$ 529.50	9,451,211	9,657,281	8,925	4.3	17,849
500-999	435	26	0.5	24.74	139,820	$ 529.50	5,985,020	6,124,840	5,652	2.7	11,303
1,000-3,299	1,087	26	0.5	24.74	349,604	$ 529.50	14,964,859	15,314,463	14,131	6.8	28,262
3,300-9,999	1,068	26	0.5	25.34	351,877	$ 529.50	14,705,512	15,057,389	13,886	6.7	27,772
10,000-49,999	1,107	26	0.5	26.05	374,887	$ 529.50	15,240,147	15,615,035	14,391	6.9	28,782
50,000-99,999	269	26	0.5	26.05	91,073	$ 529.50	3,702,369	3,793,442	3,496	1.7	6,992
100,000-999,999	318	26	0.5	31.26	129,409	$ 529.50	4,384,011	4,513,420	4,140	2.0	8,280
≥ 1 Million	57	26	0.5	31.26	23,084	$ 529.50	782,014	805,097	738	0.4	1,477
National Totals	**5,361**				**$ 1,758,833**		**$ 73,809,134**	**$ 75,567,967**	**69,697**	**33.5**	**139,394**
NTNCWSs											
<100	174	26	0.5	$ 21.44	$ 48,363	$ 529.50	$ 2,388,850	$ 2,437,213	2,256	1.1	4,512
100-499	232	26	0.5	23.09	69,737	529.50	3,198,405	3,268,141	3,020	1.5	6,040
500-999	78	26	0.5	24.74	25,113	529.50	1,074,982	1,100,096	1,015	0.5	2,030
1,000-3,299	61	26	0.5	24.74	19,533	529.50	836,097	855,630	790	0.4	1,579
3,300-9,999	13	26	0.5	25.34	4,128	529.50	172,528	176,656	163	0.1	326
10,000-49,999	1	26	0.5	26.05	337	529.50	13,717	14,054	13	0.0	26
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	-	26	0.5	31.26	-	529.50	-	-	-	-	-
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**558**				**$ 167,212**		**$ 7,684,579**	**$ 7,851,791**	**7,256**	**3.5**	**14,513**
TNCWSs											
<100	793	26	0.5	$ 21.44	$ 221,025	$ 529.50	$ 10,917,231	$ 11,138,256	10,309	5.0	20,618
100-499	509	26	0.5	23.09	152,787	529.50	7,007,403	7,160,190	6,617	3.2	13,234
500-999	79	26	0.5	24.74	25,408	529.50	1,087,593	1,113,001	1,027	0.5	2,054
1,000-3,299	49	26	0.5	24.74	15,759	529.50	674,583	690,342	637	0.3	1,274
3,300-9,999	16	26	0.5	25.34	5,271	529.50	220,272	225,543	208	0.1	416
10,000-49,999	9	26	0.5	26.05	3,048	529.50	123,903	126,951	117	0.1	234
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	1	26	0.5	31.26	406	529.50	13,767	14,173	13	0.0	26
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**1,456**				**$ 423,704**		**$ 20,044,752**	**$ 20,468,456**	**18,928**	**9.1**	**37,856**
Grand Totals	**7,375**				**$ 2,349,748**		**$ 101,538,465**	**$ 103,888,213**	**95,881**	**46.1**	**-**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities."
(B) Semimonthly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems, plus two matrix spike samples.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.

Exhibit D.13b Total Cost Estimates for *Cryptosporidium* Monitoring for All System Types, by System Size
Based on ICRSSM Occurrence Distribution, Alternative A2

System Size (Population Served)	Baseline # of Plants Monitoring *Cryptosporidium*	Sampling				Sample Analysis		Total Cost	Total Burden (Hours)	Total Burden (FTEs)	Responses
		# of *Cryptosporidium* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Cost per Sample	Total Laboratory Analysis Cost (O&M)				
	A	B	C	D	E = A*B*C*D	F	G = A*B*F	H = E+G	I = A*B*C	J = I/2080	K = A*B
CWSs											
<100	334	26	0.5	$ 21.44	$ 93,008	$ 529.50	$ 4,593,992	$ 4,686,999	4,338	2.1	8,676
100-499	687	26	0.5	23.09	206,070	$ 529.50	9,451,211	9,657,281	8,925	4.3	17,849
500-999	435	26	0.5	24.74	139,820	$ 529.50	5,985,020	6,124,840	5,652	2.7	11,303
1,000-3,299	1,087	26	0.5	24.74	349,604	$ 529.50	14,964,859	15,314,463	14,131	6.8	28,262
3,300-9,999	1,068	26	0.5	25.34	351,877	$ 529.50	14,705,512	15,057,389	13,886	6.7	27,772
10,000-49,999	1,107	26	0.5	26.05	374,887	$ 529.50	15,240,147	15,615,035	14,391	6.9	28,782
50,000-99,999	269	26	0.5	26.05	91,073	$ 529.50	3,702,369	3,793,442	3,496	1.7	6,992
100,000-999,999	318	26	0.5	31.26	129,409	$ 529.50	4,384,011	4,513,420	4,140	2.0	8,280
≥ 1 Million	57	26	0.5	31.26	23,084	$ 529.50	782,014	805,097	738	0.4	1,477
National Totals	**5,361**				**$ 1,758,833**		**$ 73,809,134**	**$ 75,567,967**	**69,697**	**33.5**	**139,394**
NTNCWSs											
<100	174	26	0.5	$ 21.44	$ 48,363	$ 529.50	$ 2,388,850	$ 2,437,213	2,256	1.1	4,512
100-499	232	26	0.5	23.09	69,737	529.50	3,198,405	3,268,141	3,020	1.5	6,040
500-999	78	26	0.5	24.74	25,113	529.50	1,074,982	1,100,096	1,015	0.5	2,030
1,000-3,299	61	26	0.5	24.74	19,533	529.50	836,097	855,630	790	0.4	1,579
3,300-9,999	13	26	0.5	25.34	4,128	529.50	172,528	176,656	163	0.1	326
10,000-49,999	1	26	0.5	26.05	337	529.50	13,717	14,054	13	0.0	26
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	-	26	0.5	31.26	-	529.50	-	-	-	-	-
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**558**				**$ 167,212**		**$ 7,684,579**	**$ 7,851,791**	**7,256**	**3.5**	**14,513**
TNCWSs											
<100	793	26	0.5	$ 21.44	$ 221,025	$ 529.50	$ 10,917,231	$ 11,138,256	10,309	5.0	20,618
100-499	509	26	0.5	23.09	152,787	529.50	7,007,403	7,160,190	6,617	3.2	13,234
500-999	79	26	0.5	24.74	25,408	529.50	1,087,593	1,113,001	1,027	0.5	2,054
1,000-3,299	49	26	0.5	24.74	15,759	529.50	674,583	690,342	637	0.3	1,274
3,300-9,999	16	26	0.5	25.34	5,271	529.50	220,272	225,543	208	0.1	416
10,000-49,999	9	26	0.5	26.05	3,048	529.50	123,903	126,951	117	0.1	234
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	1	26	0.5	31.26	406	529.50	13,767	14,173	13	0.0	26
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**1,456**				**$ 423,704**		**$ 20,044,752**	**$ 20,468,456**	**18,928**	**9.1**	**37,856**
Grand Totals	**7,375**				**$ 2,349,748**		**$ 101,538,465**	**$ 103,888,213**	**95,881**	**46.1**	**-**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:

(A) Taken from "Baseline for Implementation and Monitoring Activities."

(B) Semimonthly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems, plus two matrix spike samples.

(C) Estimate of labor for collecting sample and shipping, based on expert opinion.

(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.

(F) Cost per sample includes $403 in lab costs, $88.70 for shipping, and $37.80 in additional costs. Assume all plants must ship samples to private lab for *Cryptosporidium* analysis. Samples must be shipped overnight to meet 24-hour holding time requirements. Costs based on FedEx priority overnight rates for 10 L sample (22 LB) shipped in a 34-quart polyethylene cooler packed with wet ice, median cost for all zones. Samples generating a pellet volume of >0.5 ml require multiple subsample processing at a cost of $140 each. During the ICR Supplemental Survey, approximately 27 percent of field samples required analysis of multiple subsamples, resulting in an additional per-plant charge of $38 ($140 x 0.27).

Exhibit D.13c Total Cost Estimates for *Cryptosporidium* Monitoring for All System Types, by System Size
Based on ICRSSL Occurrence Distribution, Alternative A2

System Size (Population Served)	Baseline # of Plants Monitoring *Cryptosporidium*	Sampling				Sample Analysis		Total Cost	Total Burden (Hours)	Total Burden (FTEs)	Responses
		# of *Cryptosporidium* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Cost per Sample	Total Laboratory Analysis Cost (O&M)				
	A	B	C	D	E = A*B*C*D	F	G = A*B*F	H = E+G	I = A*B*C	J = I/2080	K = A*B
CWSs											
<100	334	26	1	21	93,008	$ 529.50	$ 4,593,992	$ 4,686,999	4,338	2.1	8,676
100-499	687	26	0.5	23.09	206,070	529.50	9,451,211	9,657,281	8,925	4.3	17,849
500-999	435	26	0.5	24.74	139,820	529.50	5,985,020	6,124,840	5,652	2.7	11,303
1,000-3,299	1,087	26	0.5	24.74	349,604	529.50	14,964,859	15,314,463	14,131	6.8	28,262
3,300-9,999	1,068	26	0.5	25.34	351,877	529.50	14,705,512	15,057,389	13,886	6.7	27,772
10,000-49,999	1,107	26	0.5	26.05	374,887	529.50	15,240,147	15,615,035	14,391	6.9	28,782
50,000-99,999	269	26	0.5	26.05	91,073	529.50	3,702,369	3,793,442	3,496	1.7	6,992
100,000-999,999	318	26	0.5	31.26	129,409	529.50	4,384,011	4,513,420	4,140	2.0	8,280
≥ 1 Million	57	26	0.5	31.26	23,084	529.50	782,014	805,097	738	0.4	1,477
National Totals	**5,361**				**$ 1,758,833**		**$ 73,809,134**	**$ 75,567,967**	**69,697**	**33.5**	**139,394**
NTNCWSs											
<100	174	26	0.5	$ 21.44	$ 48,363	$ 529.50	$ 2,388,850	$ 2,437,213	2,256	1.1	4,512
100-499	232	26	0.5	23.09	69,737	529.50	3,198,405	3,268,141	3,020	1.5	6,040
500-999	78	26	0.5	24.74	25,113	529.50	1,074,982	1,100,096	1,015	0.5	2,030
1,000-3,299	61	26	0.5	24.74	19,533	529.50	836,097	855,630	790	0.4	1,579
3,300-9,999	13	26	0.5	25.34	4,128	529.50	172,528	176,656	163	0.1	326
10,000-49,999	1	26	0.5	26.05	337	529.50	13,717	14,054	13	0.0	26
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	-	26	0.5	31.26	-	529.50	-	-	-	-	-
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**558**				**$ 167,212**						
TNCWSs											
<100	793	26	0.5	$ 21.44	$ 221,025	$ 529.50	$ 10,917,231	$ 11,138,256	10,309	5.0	20,618
100-499	509	26	0.5	23.09	152,787	529.50	7,007,403	7,160,190	6,617	3.2	13,234
500-999	79	26	0.5	24.74	25,408	529.50	1,087,593	1,113,001	1,027	0.5	2,054
1,000-3,299	49	26	0.5	24.74	15,759	529.50	674,583	690,342	637	0.3	1,274
3,300-9,999	16	26	0.5	25.34	5,271	529.50	220,272	225,543	208	0.1	416
10,000-49,999	9	26	0.5	26.05	3,048	529.50	123,903	126,951	117	0.1	234
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	1	26	0.5	31.26	406	529.50	13,767	14,173	13	0.0	26
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**1,456**				**$ 423,704**		**$ 20,044,752**	**$ 20,468,456**	**18,928**	**9.1**	**37,856**
Grand Totals	**7,375**				**$ 2,349,748**		**$ 101,538,465**	**$ 103,888,213**	**95,881**	**46.1**	**-**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities."
(B) Semimonthly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems, plus two matrix spike samples.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) Cost per sample includes $403 in lab costs, $88.70 for shipping, and $37.80 in additional costs. Assume all plants must ship samples to private lab for *Cryptosporidium* analysis. Samples must be shipped overnight to meet 24-hour holding time requirements. Costs based on FedEx priority overnight rates for 10 L sample (22 LB) shipped in a 34-quart polyethylene cooler packed with wet ice, median cost for all zones. Samples generating a pellet volume of >0.5 ml require multiple subsample processing at a cost of $140 each. During the ICR Supplemental Survey, approximately 27 percent of field samples required analysis of multiple subsamples, resulting in an additional per-plant charge of $38 ($140 x 0.27).

Exhibit D.14a Total Cost Estimates for *Cryptosporidium* Monitoring for All System Types, by System Size
Based on ICR Occurrence Distribution, Alternative A3

System Size (Population Served)	Baseline # of Plants Monitoring *Cryptosporidium*	Sampling				Sample Analysis		Total Cost	Total Burden (Hours)	Total Burden (FTEs)	Responses
		# of *Cryptosporidium* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Cost per Sample	Total Laboratory Analysis Cost (O&M)				
	A	B	C	D	E = A*B*C*D	F	G = A*B*F	H = E+G	I = A*B*C	J = I/2080	K = A*B
CWSs											
<100	117	26	0.5	$ 21.44	$ 32,551	$ 529.50	$ 1,607,793	$ 1,640,344	1,518	0.7	3,036
100-499	242	26	0.5	23.09	72,495	$ 529.50	3,324,926	3,397,421	3,140	1.5	6,279
500-999	153	26	0.5	24.74	49,320	$ 529.50	2,111,153	2,160,473	1,994	1.0	3,987
1,000-3,299	388	26	0.5	24.74	124,911	$ 529.50	5,346,858	5,471,770	5,049	2.4	10,098
3,300-9,999	381	26	0.5	25.34	125,577	$ 529.50	5,248,078	5,373,655	4,956	2.4	9,911
10,000-49,999	1,107	26	0.5	26.05	374,887	$ 529.50	15,240,147	15,615,035	14,391	6.9	28,782
50,000-99,999	269	26	0.5	26.05	91,073	$ 529.50	3,702,369	3,793,442	3,496	1.7	6,992
100,000-999,999	318	26	0.5	31.26	129,409	$ 529.50	4,384,011	4,513,420	4,140	2.0	8,280
≥ 1 Million	57	26	0.5	31.26	23,084	$ 529.50	782,014	805,097	738	0.4	1,477
National Totals	**3,032**				**$ 1,023,308**		**$ 41,747,349**	**$ 42,770,657**	**39,421**	**19.0**	**78,843**
NTNCWSs											
<100	60	26	0.5	$ 21.44	$ 16,830	$ 529.50	$ 831,320	$ 848,150	785	0.4	1,570
100-499	81	26	0.5	23.09	24,268	529.50	1,113,045	1,137,313	1,051	0.5	2,102
500-999	27	26	0.5	24.74	8,739	529.50	374,094	382,833	353	0.2	707
1,000-3,299	21	26	0.5	24.74	6,797	529.50	290,962	297,759	275	0.1	550
3,300-9,999	4	26	0.5	25.34	1,437	529.50	60,040	61,476	57	0.0	113
10,000-49,999	1	26	0.5	26.05	337	529.50	13,717	14,054	13	0.0	26
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	-	26	0.5	31.26	-	529.50	-	-	-	-	-
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**195**				**$ 58,410**		**$ 2,683,177**	**$ 2,741,586**	**2,534**	**1.2**	**5,067**
TNCWSs											
<100	276	26	0.5	$ 21.44	$ 76,917	$ 529.50	$ 3,799,196	$ 3,876,113	3,588	1.7	7,175
100-499	177	26	0.5	23.09	53,170	529.50	2,438,576	2,491,746	2,303	1.1	4,605
500-999	27	26	0.5	24.74	8,842	529.50	378,482	387,324	357	0.2	715
1,000-3,299	17	26	0.5	24.74	5,484	529.50	234,755	240,239	222	0.1	443
3,300-9,999	6	26	0.5	25.34	1,834	529.50	76,655	78,489	72	0.0	145
10,000-49,999	9	26	0.5	26.05	3,048	529.50	123,903	126,951	117	0.1	234
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	1	26	0.5	31.26	406	529.50	13,767	14,173	13	0.0	26
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**513**				**$ 149,701**		**$ 7,065,335**	**$ 7,215,036**	**6,672**	**3.2**	**13,343**
Grand Totals	**3,741**				**$ 1,231,419**		**$ 51,495,860**	**$ 52,727,279**	**48,627**	**23.4**	**-**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities."
(B) Semimonthly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems, plus two matrix spike samples.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) Cost per sample includes $403 in lab costs, $88.70 for shipping, and $37.80 in additional costs. Assume all plants must ship samples to private lab for *Cryptosporidium* analysis. Samples must be shipped overnight to meet 24-hour holding time requirements. Costs based on FedEx priority overnight rates for 10 L sample (22 LB) shipped in a 34-quart polyethylene cooler packed with wet ice, median cost for all zones. Samples generating a pellet volume of >0.5 ml require multiple subsample processing at a cost of $140 each. During the ICR Supplemental Survey, approximately 27 percent of field samples required analysis of multiple subsamples, resulting in an additional per-plant charge of $38 ($140 x 0.27).

Exhibit D.14b Total Cost Estimates for *Cryptosporidium* Monitoring for All System Types, by System Size
Based on ICRSSM Occurrence Distribution, Alternative A3

System Size (Population Served)	Baseline # of Plants Monitoring *Cryptosporidium*	Sampling				Sample Analysis		Total Cost	Total Burden (Hours)	Total Burden (FTEs)	Responses
		# of *Cryptosporidium* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Cost per Sample	Total Laboratory Analysis Cost (O&M)				
	A	B	C	D	E = A*B*C*D	F	G = A*B*F	H = E+G	I = A*B*C	J = I/2080	K = A*B
CWSs											
<100	92	26	0.5	$ 21.44	$ 25,503	$ 529.50	$ 1,259,709	$ 1,285,212	1,190	0.6	2,379
100-499	190	26	0.5	23.09	56,925	529.50	2,610,819	2,667,744	2,465	1.2	4,931
500-999	121	26	0.5	24.74	38,771	529.50	1,659,598	1,698,369	1,567	0.8	3,134
1,000-3,299	307	26	0.5	24.74	98,720	529.50	4,225,741	4,324,462	3,990	1.9	7,981
3,300-9,999	301	26	0.5	25.34	99,199	529.50	4,145,677	4,244,876	3,915	1.9	7,829
10,000-49,999	1,107	26	0.5	26.05	374,887	529.50	15,240,147	15,615,035	14,391	6.9	28,782
50,000-99,999	269	26	0.5	26.05	91,073	529.50	3,702,369	3,793,442	3,496	1.7	6,992
100,000-999,999	318	26	0.5	31.26	129,409	529.50	4,384,011	4,513,420	4,140	2.0	8,280
≥ 1 Million	57	26	0.5	31.26	23,084	529.50	782,014	805,097	738	0.4	1,477
National Totals	**2,761**				**$ 937,572**		**$ 38,010,085**	**$ 38,947,658**	**35,892**	**17.3**	**71,785**
NTNCWSs											
<100	47	26	0.5	$ 21.44	$ 13,155	$ 529.50	$ 649,767	$ 662,922	614	0.3	1,227
100-499	63	26	0.5	23.09	18,968	529.50	869,966	888,934	821	0.4	1,643
500-999	21	26	0.5	24.74	6,831	529.50	292,395	299,226	276	0.1	552
1,000-3,299	17	26	0.5	24.74	5,313	529.50	227,419	232,731	215	0.1	429
3,300-9,999	3	26	0.5	25.34	1,123	529.50	46,928	48,051	44	0.0	89
10,000-49,999	1	26	0.5	26.05	337	529.50	13,717	14,054	13	0.0	26
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	-	26	0.5	31.26	-	529.50	-	-	-	-	-
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**153**				**$ 45,727**		**$ 2,100,191**	**$ 2,145,918**	**1,983**	**1.0**	**3,966**
TNCWSs											
<100	216	26	0.5	$ 21.44	$ 60,119	$ 529.50	$ 2,969,487	$ 3,029,606	2,804	1.3	5,608
100-499	138	26	0.5	23.09	41,558	529.50	1,906,014	1,947,572	1,800	0.9	3,600
500-999	21	26	0.5	24.74	6,911	529.50	295,825	302,736	279	0.1	559
1,000-3,299	13	26	0.5	24.74	4,287	529.50	183,487	187,773	173	0.1	347
3,300-9,999	4	26	0.5	25.34	1,434	529.50	59,914	61,348	57	0.0	113
10,000-49,999	9	26	0.5	26.05	3,048	529.50	123,903	126,951	117	0.1	234
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	1	26	0.5	31.26	406	529.50	13,767	14,173	13	0.0	26
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**403**				**$ 117,762**		**$ 5,552,396**	**$ 5,670,158**	**5,243**	**2.5**	**10,486**
Grand Totals	**3,317**				**$ 1,101,062**		**$ 45,662,673**	**$ 46,763,735**	**43,119**	**20.7**	**-**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities."
(B) Semimonthly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems, plus two matrix spike samples.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) Cost per sample includes $403 in lab costs, $88.70 for shipping, and $37.80 in additional costs. Assume all plants must ship samples to private lab for *Cryptosporidium* analysis. Samples must be shipped overnight to meet 24-hour holding time requirements. Costs based on FedEx priority overnight rates for 10 L sample (22 LB) shipped in a 34-quart polyethylene cooler packed with wet ice, median cost for all zones. Samples generating a pellet volume of >0.5 ml require multiple subsample processing at a cost of $140 each. During the ICR Supplemental Survey, approximately 27 percent of field samples required analysis of multiple subsamples, resulting in an additional per-plant charge of $38 ($140 x 0.27).

Exhibit D.14c Total Cost Estimates for *Cryptosporidium* Monitoring for All System Types, by System Size
Based on ICRSSL Occurrence Distribution, Alternative A3

System Size (Population Served)	Baseline # of Plants Monitoring *Cryptosporidium*	Sampling				Sample Analysis		Total Cost	Total Burden (Hours)	Total Burden (FTEs)	Responses
		# of *Cryptosporidium* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Cost per Sample	Total Laboratory Analysis Cost (O&M)				
	A	B	C	D	E = A*B*C*D	F	G = A*B*F	H = E+G	I = A*B*C	J = I/2080	K = A*B
CWSs											
<100	75	26	0.5	$ 21.44	$ 21,016	$ 529.50	$ 1,038,034	$ 1,059,050	980	0.5	1,960
100-499	157	26	0.5	23.09	47,010	529.50	2,156,046	2,203,055	2,036	1.0	4,072
500-999	100	26	0.5	24.74	32,053	529.50	1,372,029	1,404,082	1,296	0.6	2,591
1,000-3,299	255	26	0.5	24.74	82,041	529.50	3,511,767	3,593,808	3,316	1.6	6,632
3,300-9,999	250	26	0.5	25.34	82,400	529.50	3,443,622	3,526,022	3,252	1.6	6,504
10,000-49,999	1,107	26	0.5	26.05	374,887	529.50	15,240,147	15,615,035	14,391	6.9	28,782
50,000-99,999	269	26	0.5	26.05	91,073	529.50	3,702,369	3,793,442	3,496	1.7	6,992
100,000-999,999	318	26	0.5	31.26	129,409	529.50	4,384,011	4,513,420	4,140	2.0	8,280
≥ 1 Million	57	26	0.5	31.26	23,084	529.50	782,014	805,097	738	0.4	1,477
National Totals	**2,588**				**$ 882,972**		**$ 35,630,039**	**$ 36,513,011**	**33,645**	**16.2**	**67,290**
NTNCWSs											
<100	39	26	0.5	$ 21.44	$ 10,814	$ 529.50	$ 534,147	$ 544,961	504	0.2	1,009
100-499	52	26	0.5	23.09	15,593	529.50	715,163	730,756	675	0.3	1,351
500-999	17	26	0.5	24.74	5,615	529.50	240,366	245,981	227	0.1	454
1,000-3,299	14	26	0.5	24.74	4,367	529.50	186,951	191,319	177	0.1	353
3,300-9,999	3	26	0.5	25.34	923	529.50	38,577	39,500	36	0.0	73
10,000-49,999	1	26	0.5	26.05	337	529.50	13,717	14,054	13	0.0	26
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	-	26	0.5	31.26	-	529.50	-	-	-	-	-
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**126**				**$ 37,651**		**$ 1,728,921**	**$ 1,766,572**	**1,633**	**0.8**	**3,265**
TNCWSs											
<100	177	26	0.5	$ 21.44	$ 49,421	$ 529.50	$ 2,441,093	$ 2,490,514	2,305	1.1	4,610
100-499	114	26	0.5	23.09	34,163	529.50	1,566,855	1,601,018	1,480	0.7	2,959
500-999	18	26	0.5	24.74	5,681	529.50	243,186	248,867	230	0.1	459
1,000-3,299	11	26	0.5	24.74	3,524	529.50	150,837	154,361	142	0.1	285
3,300-9,999	4	26	0.5	25.34	1,179	529.50	49,253	50,431	47	0.0	93
10,000-49,999	9	26	0.5	26.05	3,048	529.50	123,903	126,951	117	0.1	234
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	1	26	0.5	31.26	406	529.50	13,767	14,173	13	0.0	26
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**333**				**$ 97,422**		**$ 4,588,894**	**$ 4,686,316**	**4,333**	**2.1**	**8,666**
Grand Totals	**3,047**				**$ 1,018,045**		**$ 41,947,854**	**$ 42,965,898**	**39,611**	**19.0**	**-**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities."
(B) Semimonthly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems, plus two matrix spike samples.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) Cost per sample includes $403 in lab costs, $88.70 for shipping, and $37.80 in additional costs. Assume all plants must ship samples to private lab for *Cryptosporidium* analysis. Samples must be shipped overnight to meet 24-hour holding time requirements. Costs based on FedEx priority overnight rates for 10 L sample (22 LB) shipped in a 34-quart polyethylene cooler packed with wet ice, median cost for all zones. Samples generating a pellet volume of >0.5 ml require multiple subsample processing at a cost of $140 each. During the ICR Supplemental Survey, approximately 27 percent of field samples required analysis of multiple subsamples, resulting in an additional per-plant charge of $38 ($140 x 0.27).

Exhibit D.15a Total Cost Estimates for *Cryptosporidium* Monitoring for All System Types, by System Size
Based on ICR Occurrence Distribution, Alternative A4

System Size (Population Served)	Baseline # of Plants Monitoring *Cryptosporidium*	Sampling				Sample Analysis		Total Cost	Total Burden (Hours)	Total Burden (FTEs)	Responses
		# of *Cryptosporidium* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Cost per Sample	Total Laboratory Analysis Cost (O&M)				
	A	B	C	D	E = A*B*C*D	F	G = A*B*F	H = E+G	I = A*B*C	J = I/2080	K = A*B
CWSs											
<100	102	26	0.5	$ 21.44	$ 28,378	$ 529.50	$ 1,401,691	$ 1,430,069	1,324	0.6	2,647
100-499	211	26	0.5	23.09	63,276	529.50	2,902,099	2,965,375	2,740	1.3	5,481
500-999	134	26	0.5	24.74	43,074	529.50	1,843,785	1,886,859	1,741	0.8	3,482
1,000-3,299	340	26	0.5	24.74	109,404	529.50	4,683,039	4,792,443	4,422	2.1	8,844
3,300-9,999	334	26	0.5	25.34	109,958	529.50	4,595,341	4,705,299	4,339	2.1	8,679
10,000-49,999	1,107	26	0.5	26.05	374,887	529.50	15,240,147	15,615,035	14,391	6.9	28,782
50,000-99,999	269	26	0.5	26.05	91,073	529.50	3,702,369	3,793,442	3,496	1.7	6,992
100,000-999,999	318	26	0.5	31.26	129,409	529.50	4,384,011	4,513,420	4,140	2.0	8,280
≥ 1 Million	57	26	0.5	31.26	23,084	529.50	782,014	805,097	738	0.4	1,477
National Totals	**2,872**				**$ 972,544**		**$ 39,534,495**	**$ 40,507,039**	**37,332**	**17.9**	**74,664**
NTNCWSs											
<100	53	26	0.5	$ 21.44	$ 14,654	$ 529.50	$ 723,822	$ 738,476	683	0.3	1,367
100-499	70	26	0.5	23.09	21,130	529.50	969,117	990,247	915	0.4	1,830
500-999	24	26	0.5	24.74	7,609	529.50	325,720	333,329	308	0.1	615
1,000-3,299	18	26	0.5	24.74	5,918	529.50	253,338	259,256	239	0.1	478
3,300-9,999	4	26	0.5	25.34	1,251	529.50	52,276	53,527	49	0.0	99
10,000-49,999	1	26	0.5	26.05	337	529.50	13,717	14,054	13	0.0	26
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	-	26	0.5	31.26	-	529.50	-	-	-	-	-
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**170**				**$ 50,900**		**$ 2,337,988**	**$ 2,388,888**	**2,208**	**1.1**	**4,415**
TNCWSs											
<100	240	26	0.5	$ 21.44	$ 66,971	$ 529.50	$ 3,307,921	$ 3,374,892	3,124	1.5	6,247
100-499	154	26	0.5	23.09	46,294	529.50	2,123,243	2,169,537	2,005	1.0	4,010
500-999	24	26	0.5	24.74	7,699	529.50	329,541	337,239	311	0.1	622
1,000-3,299	15	26	0.5	24.74	4,775	529.50	204,399	209,174	193	0.1	386
3,300-9,999	5	26	0.5	25.34	1,597	529.50	66,742	68,339	63	0.0	126
10,000-49,999	9	26	0.5	26.05	3,048	529.50	123,903	126,951	117	0.1	234
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	1	26	0.5	31.26	406	529.50	13,767	14,173	13	0.0	26
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**448**				**$ 130,790**		**$ 6,169,516**	**$ 6,300,306**	**5,826**	**2.8**	**11,652**
Grand Totals	**3,490**				**$ 1,154,234**		**$ 48,041,999**	**$ 49,196,233**	**45,365**	**21.8**	**-**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities."
(B) Semimonthly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems, plus two matrix spike samples.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) Cost per sample includes $403 in lab costs, $88.70 for shipping, and $37.80 in additional costs. Assume all plants must ship samples to private lab for *Cryptosporidium* analysis. Samples must be shipped overnight to meet 24-hour holding time requirements. Costs based on FedEx priority overnight rates for 10 L sample (22 LB) shipped in a 34-quart polyethylene cooler packed with wet ice, median cost for all zones. Samples generating a pellet volume of >0.5 ml require multiple subsample processing at a cost of $140 each. During the ICR Supplemental Survey, approximately 27 percent of field samples required analysis of multiple subsamples, resulting in an additional per-plant charge of $38 ($140 x 0.27).

Exhibit D.15b Total Cost Estimates for *Cryptosporidium* Monitoring for All System Types, by System Size
Based on ICRSSM Occurrence Distribution, Alternative A4

System Size (Population Served)	Baseline # of Plants Monitoring *Cryptosporidium*	Sampling				Sample Analysis		Total Cost	Total Burden (Hours)	Total Burden (FTEs)	Responses
		# of *Cryptosporidium* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Cost per Sample	Total Laboratory Analysis Cost (O&M)				
	A	B	C	D	E = A*B*C*D	F	G = A*B*F	H = E+G	I = A*B*C	J = I/2080	K = A*B
CWSs											
<100	73	26	0.5	$ 21.44	$ 20,218	$ 529.50	$ 998,645	$ 1,018,864	943	0.5	1,886
100-499	151	26	0.5	23.09	45,248	529.50	2,075,239	2,120,486	1,960	0.9	3,919
500-999	96	26	0.5	24.74	30,859	529.50	1,320,932	1,351,791	1,247	0.6	2,495
1,000-3,299	246	26	0.5	24.74	79,077	529.50	3,384,904	3,463,981	3,196	1.5	6,393
3,300-9,999	241	26	0.5	25.34	79,415	529.50	3,318,877	3,398,292	3,134	1.5	6,268
10,000-49,999	1,107	26	0.5	26.05	374,887	529.50	15,240,147	15,615,035	14,391	6.9	28,782
50,000-99,999	269	26	0.5	26.05	91,073	529.50	3,702,369	3,793,442	3,496	1.7	6,992
100,000-999,999	318	26	0.5	31.26	129,409	529.50	4,384,011	4,513,420	4,140	2.0	8,280
≥ 1 Million	57	26	0.5	31.26	23,084	529.50	782,014	805,097	738	0.4	1,477
National Totals	**2,557**				**$ 873,270**		**$ 35,207,138**	**$ 36,080,408**	**33,246**	**16.0**	**66,491**
NTNCWSs											
<100	37	26	0.5	$ 21.44	$ 10,398	$ 529.50	$ 513,603	$ 524,001	485	0.2	970
100-499	50	26	0.5	23.09	14,993	529.50	687,657	702,650	649	0.3	1,299
500-999	17	26	0.5	24.74	5,399	529.50	231,121	236,521	218	0.1	436
1,000-3,299	13	26	0.5	24.74	4,200	529.50	179,761	183,960	170	0.1	339
3,300-9,999	3	26	0.5	25.34	888	529.50	37,094	37,981	35	0.0	70
10,000-49,999	1	26	0.5	26.05	337	529.50	13,717	14,054	13	0.0	26
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	-	26	0.5	31.26	-	529.50	-	-	-	-	-
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**121**				**$ 36,215**		**$ 1,662,952**	**$ 1,699,167**	**1,570**	**0.8**	**3,141**
TNCWSs											
<100	170	26	0.5	$ 21.44	$ 47,520	$ 529.50	$ 2,347,205	$ 2,394,725	2,216	1.1	4,433
100-499	109	26	0.5	23.09	32,849	529.50	1,506,592	1,539,441	1,423	0.7	2,845
500-999	17	26	0.5	24.74	5,463	529.50	233,832	239,295	221	0.1	442
1,000-3,299	11	26	0.5	24.74	3,388	529.50	145,035	148,424	137	0.1	274
3,300-9,999	3	26	0.5	25.34	1,133	529.50	47,358	48,492	45	0.0	89
10,000-49,999	9	26	0.5	26.05	3,048	529.50	123,903	126,951	117	0.1	234
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	1	26	0.5	31.26	406	529.50	13,767	14,173	13	0.0	26
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**321**				**$ 93,808**		**$ 4,417,693**	**$ 4,511,501**	**4,172**	**2.0**	**8,343**
Grand Totals	**2,999**				**$ 1,003,294**		**$ 41,287,782**	**$ 42,291,076**	**38,988**	**18.7**	**-**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities."
(B) Semimonthly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems, plus two matrix spike samples.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) Cost per sample includes $403 in lab costs, $88.70 for shipping, and $37.80 in additional costs. Assume all plants must ship samples to private lab for *Cryptosporidium* analysis. Samples must be shipped overnight to meet 24-hour holding time requirements. Costs based on FedEx priority overnight rates for 10 L sample (22 LB) shipped in a 34-quart polyethylene cooler packed with wet ice, median cost for all zones. Samples generating a pellet volume of >0.5 ml require multiple subsample processing at a cost of $140 each. During the ICR Supplemental Survey, approximately 27 percent of field samples required analysis of multiple subsamples, resulting in an additional per-plant charge of $38 ($140 x 0.27).

Exhibit D.15c Total Cost Estimates for *Cryptosporidium* Monitoring for All System Types, by System Size
Based on ICRSSL Occurrence Distribution, Alternative A4

System Size (Population Served)	Baseline # of Plants Monitoring *Cryptosporidium*	Sampling				Sample Analysis		Total Cost	Total Burden (Hours)	Total Burden (FTEs)	Responses
		# of *Cryptosporidium* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Cost per Sample	Total Laboratory Analysis Cost (O&M)				
	A	B	C	D	E = A*B*C*D	F	G = A*B*F	H = E+G	I = A*B*C	J = I/2080	K = A*B
CWSs											
<100	54	26	0.5	$ 21.44	$ 15,118	$ 529.50	$ 746,742	$ 761,860	705	0.3	1,410
100-499	113	26	0.5	23.09	33,980	529.50	1,558,451	1,592,431	1,472	0.7	2,943
500-999	72	26	0.5	24.74	23,225	529.50	994,148	1,017,373	939	0.5	1,878
1,000-3,299	187	26	0.5	24.74	60,123	529.50	2,573,569	2,633,692	2,430	1.2	4,860
3,300-9,999	183	26	0.5	25.34	60,325	529.50	2,521,087	2,581,413	2,381	1.1	4,761
10,000-49,999	1,107	26	0.5	26.05	374,887	529.50	15,240,147	15,615,035	14,391	6.9	28,782
50,000-99,999	269	26	0.5	26.05	91,073	529.50	3,702,369	3,793,442	3,496	1.7	6,992
100,000-999,999	318	26	0.5	31.26	129,409	529.50	4,384,011	4,513,420	4,140	2.0	8,280
≥ 1 Million	57	26	0.5	31.26	23,084	529.50	782,014	805,097	738	0.4	1,477
National Totals	**2,361**				**$ 811,225**		**$ 32,502,539**	**$ 33,313,764**	**30,692**	**14.8**	**61,383**
NTNCWSs											
<100	28	26	0.5	$ 21.44	$ 7,738	$ 529.50	$ 382,216	$ 389,954	361	0.2	722
100-499	37	26	0.5	23.09	11,158	529.50	511,745	522,903	483	0.2	966
500-999	12	26	0.5	24.74	4,018	529.50	171,997	176,015	162	0.1	325
1,000-3,299	10	26	0.5	24.74	3,125	529.50	133,776	136,901	126	0.1	253
3,300-9,999	2	26	0.5	25.34	661	529.50	27,604	28,265	26	0.0	52
10,000-49,999	1	26	0.5	26.05	337	529.50	13,717	14,054	13	0.0	26
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	-	26	0.5	31.26	-	529.50	-	-	-	-	-
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**90**				**$ 27,037**		**$ 1,241,055**	**$ 1,268,092**	**1,172**	**0.6**	**2,344**
TNCWSs											
<100	127	26	0.5	$ 21.44	$ 35,364	$ 529.50	$ 1,746,757	$ 1,782,121	1,649	0.8	3,299
100-499	81	26	0.5	23.09	24,446	529.50	1,121,184	1,145,630	1,059	0.5	2,117
500-999	13	26	0.5	24.74	4,065	529.50	174,015	178,080	164	0.1	329
1,000-3,299	8	26	0.5	24.74	2,522	529.50	107,933	110,455	102	0.0	204
3,300-9,999	3	26	0.5	25.34	843	529.50	35,244	36,087	33	0.0	67
10,000-49,999	9	26	0.5	26.05	3,048	529.50	123,903	126,951	117	0.1	234
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	1	26	0.5	31.26	406	529.50	13,767	14,173	13	0.0	26
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**241**				**$ 70,694**		**$ 3,322,803**	**$ 3,393,497**	**3,138**	**1.5**	**6,275**
Grand Totals	**2,692**				**$ 908,956**		**$ 37,066,397**	**$ 37,975,353**	**35,001**	**16.8**	**-**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities."
(B) Semimonthly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems, plus two matrix spike samples.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) Cost per sample includes $403 in lab costs, $88.70 for shipping, and $37.80 in additional costs. Assume all plants must ship samples to private lab for *Cryptosporidium* analysis. Samples must be shipped overnight to meet 24-hour holding time requirements. Costs based on FedEx priority overnight rates for 10 L sample (22 LB) shipped in a 34-quart polyethylene cooler packed with wet ice, median cost for all zones. Samples generating a pellet volume of >0.5 ml require multiple subsample processing at a cost of $140 each. During the ICR Supplemental Survey, approximately 27 percent of field samples required analysis of multiple subsamples, resulting in an additional per-plant charge of $38 ($140 x 0.27).

Exhibit D.16 Reporting Cost and Labor Estimates for Bin Classification Monitoring for All Regulatory Alternatives

System Size (Population Served)	Hours per Plant	Cost per Labor Hour	Baseline # of Plants Reporting	Total Cost	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C	D = A*B*C	E = A*C	F = E/2080
CWSs						
<100	6.5	$ 21.44	333	$ 46,363	2,162	1.0
100-499	6.5	23.09	683	102,435	4,436	2.1
500-999	6.5	30.03	432	84,247	2,805	1.3
1,000-3,299	6.5	30.03	1,072	209,168	6,965	3.3
3,300-9,999	6.5	30.51	1,054	208,964	6,849	3.3
10,000-49,999	6	31.08	1,092	203,602	6,551	3.1
50,000-99,999	6	31.08	264	49,222	1,584	0.8
100,000-999,999	6	35.25	313	66,140	1,876	0.9
≥ 1 Million	6	35.25	53	11,304	321	0.2
National Totals			**5,294**	**$ 981,445**	**33,549**	**16.1**
NTNCWSs						
<100	6.5	$ 21.44	174	$ 24,182	1,128	0.5
100-499	6.5	23.09	232	34,868	1,510	0.7
500-999	6.5	30.03	78	15,243	508	0.2
1,000-3,299	6.5	30.03	61	11,855	395	0.2
3,300-9,999	6.5	30.51	13	2,485	81	0.0
10,000-49,999	6	31.08	1	186	6	0.0
50,000-99,999	6	31.08	0	-	-	-
100,000-999,999	6	35.25	0	-	-	-
≥ 1 Million	6	35.25	0	-	-	-
National Totals			**558**	**$ 88,819**	**3,628**	**1.7**
TNCWSs						
<100	6.5	$ 21.44	793	$ 110,512	5,155	2.5
100-499	6.5	23.09	509	76,393	3,309	1.6
500-999	6.5	30.03	79	15,421	514	0.2
1,000-3,299	6.5	30.03	49	9,565	319	0.2
3,300-9,999	6.5	30.51	16	3,173	104	0.1
10,000-49,999	6	31.08	9	1,678	54	0.0
50,000-99,999	6	31.08	0	-	-	-
100,000-999,999	6	35.25	1	211	6	0.0
≥ 1 Million	6	35.25	0	-	-	-
National Totals			**1,456**	**$ 216,955**	**9,459**	**4.5**
Grand Totals			**7,308**	**$ 1,287,220**	**46,636**	**22.4**

Notes:

Detail may not add exactly to totals due to independent rounding.

Sources:

(A) Hours per plant reporting to the State/Primacy Agency for bin classification exemption and to report *E. coli* and *Cryptosporidium* monitoring data and bin classification. Assumes 15 minutes per sample. Based on 24 monthly *E. coli* and *Cryptosporidium* samples for medium and large systems and 26 biweekly *E. coli* and 24 semimonthly *Cryptosporidium* samples for small systems. Although small systems will not report E. coli and Cryptosporidium results at the same time, the additional reporting burden is assumed to be negligible. The decrease in burden for small plants that report *E. coli* but are exempt from *Cryptosporidium* monitoring is also assumed to be negligible.

(B) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.

(C) Taken from "Baseline for Implementation and Monitoring Activities," column D.

Exhibit D.17a State Reporting Costs and Labor Estimate for Initial *E. coli* and *Cryptosporidium* Monitoring for Small Systems

State Activity	FTEs per State for *E. coli* Monitoring	Total Hours for *E. coli*	FTEs Per State for *Cryptosporidium* Monitoring	Total Hours for *Cryptosporidium*	Total FTEs Per State	Total Hours	Cost per Labor Hour	Total Cost
	A	B = A*2080	C	D = C*2080	E = A+C	F = B+D	G	H = F*G
Analyze PWS Report and Make Bin Classifications	0.3	624	0.2	416	0.5	1040	$ 33.60	$ 34,949
Respond to PWS	0.3	624	0.2	416	0.5	1040	33.60	34,949
Recordkeeping	0.25	520	0.25	520	0.5	1040	33.60	34,949
Totals per State	**0.9**	**1,768**	**0.7**	**1,352**	**2**	**3,120**	**-**	**$ 104,847**
National Totals (57 States/Primacy Agencies)	**48.5**	**100,776**	**37.1**	**77,064**	**86**	**177,840**	0	**$ 5,976,281**

Notes:
Detail may not add to totals due to independent rounding.
All States/Primacy Agencies are assumed to incur some costs for each activitiy.
1 FTE = 2,080 hours (40 hours/week; 52 weeks/year)
Sources:
(A), (C) EPA estimated FTEs based on experience with similar regulations.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.17b State Reporting Costs and Labor Estimate for Future *E. coli* and *Cryptosporidium* Monitoring

State Activity	FTEs per State for *E. coli* Monitoring in Small Systems	Total Hours for *E. coli* in Small Systems	FTEs Per State for *Cryptosporidium* Monitoring in Small Systems	Total Hours for *Cryptosporidium* in Small Systems	FTEs Per State for *Cryptosporidium* Monitoring in Medium & Large Systems	Total Hours for *Cryptosporidium* in Medium & Large Systems	Total FTEs Per State	Total Hours	Cost per Labor Hour	Total Cost
	A	B = A*2080	C	D = C*2080	E	F = E*2080	G = A+C+E	H = B+D+F	I	J = H*I
Analyze PWS Report and Make Bin Classifications	0.2	416	0.1	208	0.1	208	0.4	832	$ 33.60	$ 27,959
Respond to PWS	0.2	416	0.1	208	0.1	208	0.4	832	33.60	$ 27,959
Recordkeeping	0.25	520	0.25	520	0.25	520	0.75	1560	33.60	$ 52,424
Totals per State	**0.7**	**1,352**	**0.5**	**936**	**0.5**	**936**	**1.6**	**3,224**	**-**	**$ 108,342**
National Totals (57 States/Primacy Agencies)	**37.1**	**77,064**	**25.7**	**53,352**	**25.7**	**53,352**	**88.4**	**183,768**	0	**$ 6,175,490**

Notes:
Detail may not add to totals due to independent rounding.
All States/Primacy Agencies are assumed to incur some costs for each activity.
1 FTE = 2,080 hours (40 hours/week; 52 weeks/year)
Sources:
(A), (C), (E) EPA estimated FTEs based on experience with similar regulations.
(I) Based on information gathered during the development of the State Workload Model.

Exhibit D.18a Burden and Cost to States Associated with Reviewing Plants' Reports on Technology Compliance Based on ICR Occurrence Distribution, Alternative A2

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Unfiltered Plants Installing Ozone	Number of Plants Installing Bank Filtration	Total Plants	Annual Labor Hours per Plant	Labor Rate	Total Annual Labor Hours	Total Annual Costs
	A	B	C	D	E = A+B+C+D	F	G	H = E*F	I = G*H
<100	133	94	-	-	227	6	$ 33.60	1,361	$ 45,732
100-499	123	73	-	-	196	6	33.60	1,175	39,478
500-999	49	39	0	-	88	6	33.60	527	17,724
1,000-3,299	271	30	1	-	303	6	33.60	1,815	61,007
3,300-9,999	250	26	1	-	277	6	33.60	1,663	55,888
10,000-49,999	399	27	1	4	431	6	33.60	2,586	86,911
50,000-99,999	109	6	0	1	117	6	33.60	702	23,578
100,000-999,999	126	7	0	1	135	6	33.60	812	27,271
≥ 1 Million	23	1	-	0	24	6	33.60	146	4,900
Totals	**1,483**	**304**	**4**	**6**	**1,798**	0	**$ -**	**10,787**	**$ 362,487**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A), (B), (C) Taken from Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on an estimate of 0.5 hours per month needed to review each plant's reports.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.18b Burden and Cost to States Associated with Reviewing Plants' Reports on Technology Compliance Based on ICRSSM Occurrence Distribution, Alternative A2

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Unfiltered Plants Installing Ozone	Number of Plants Installing Bank Filtration	Total Plants	Annual Labor Hours per Plant	Labor Rate	Total Annual Labor Hours	Total Annual Costs
	A	B	C	D	E = A+B+C+D	F	G	H = E*F	I = G*H
<100	75	87	-	-	162	6	$ 33.60	972	$ 32,676
100-499	70	67	-	-	138	6	33.60	826	27,765
500-999	29	36	0	-	65	6	33.60	392	13,159
1,000-3,299	194	26	1	-	220	6	33.60	1,322	44,414
3,300-9,999	178	22	1	-	202	6	33.60	1,211	40,685
10,000-49,999	337	22	1	4	364	6	33.60	2,184	73,380
50,000-99,999	92	5	0	1	99	6	33.60	593	19,938
100,000-999,999	106	6	0	1	113	6	33.60	679	22,831
≥ 1 Million	19	1	-	0	21	6	33.60	123	4,143
Totals	**1,101**	**273**	**4**	**6**	**1,384**	0	**$ -**	**8,302**	**$ 278,991**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A), (B), (C) Taken from Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on an estimate of 0.5 hours per month needed to review each plant's reports.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.18c Burden and Cost to States Associated with Reviewing Plants' Reports on Technology Compliance Based on ICRSSL Occurrence Distribution, Alternative A2

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Unfiltered Plants Installing Ozone	Number of Plants Installing Bank Filtration	Total Plants	Annual Labor Hours per Plant	Labor Rate	Total Annual Labor Hours	Total Annual Costs
	A	B	C	D	E = A+B+C+D	F	G	H = E*F	I = G*H
<100	60	86	-	-	145	6	$ 33.60	873	$ 29,327
100-499	57	66	-	-	123	6	33.60	737	24,760
500-999	23	36	0	-	59	6	33.60	357	11,987
1,000-3,299	154	24	1	-	180	6	33.60	1,077	36,198
3,300-9,999	142	21	1	-	165	6	33.60	988	33,186
10,000-49,999	294	20	1	3	319	6	33.60	1,913	64,291
50,000-99,999	81	5	0	1	87	6	33.60	520	17,491
100,000-999,999	92	6	0	1	99	6	33.60	592	19,878
≥ 1 Million	17	1	-	0	18	6	33.60	108	3,640
Totals	**920**	**264**	**4**	**6**	**1,194**	0	**$ -**	**7,164**	**$ 240,758**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A), (B), (C) Taken from Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on an estimate of 0.5 hours per month needed to review each plant's reports.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.19a Burden and Cost to States Associated with Reviewing Plants' Reports on Technology Compliance Based on ICR Occurrence Distribution, Alternative A3

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Unfiltered Plants Installing Ozone	Number of Plants Installing Bank Filtration	Total Plants	Annual Labor Hours per Plant	Labor Rate	Total Annual Labor Hours	Total Annual Costs
	A	B	C	D	E = A+B+C+D	F	G	H = E*F	I = G*H
<100	85	88	-	-	173	6	$ 33.60	1,037	$ 34,853
100-499	79	68	-	-	147	6	33.60	884	29,718
500-999	32	37	0	-	69	6	33.60	414	13,928
1,000-3,299	125	27	1	-	154	6	33.60	922	30,976
3,300-9,999	116	23	1	-	140	6	33.60	840	28,220
10,000-49,999	366	22	1	4	392	6	33.60	2,353	79,075
50,000-99,999	100	5	0	1	107	6	33.60	639	21,488
100,000-999,999	115	6	0	1	122	6	33.60	734	24,655
≥ 1 Million	21	1	-	0	22	6	33.60	132	4,449
Totals	**1,038**	**277**	**4**	**6**	**1,326**	0	**$ -**	**7,956**	**$ 267,362**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A), (B), (C) Taken from Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on an estimate of 0.5 hours per month needed to review each plant's reports.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.19b Burden and Cost to States Associated with Reviewing Plants' Reports on Technology Compliance Based on ICRSSM Occurrence Distribution, Alternative A3

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Unfiltered Plants Installing Ozone	Number of Plants Installing Bank Filtration	Total Plants	Annual Labor Hours per Plant	Labor Rate	Total Annual Labor Hours	Total Annual Costs
	A	B	C	D	E = A+B+C+D	F	G	H = E*F	I = G*H
<100	47	84	-	-	131	6	$ 33.60	789	$ 26,514
100-499	46	65	-	-	110	6	33.60	662	22,236
500-999	19	35	0	-	55	6	33.60	328	11,014
1,000-3,299	61	24	1	-	86	6	33.60	518	17,406
3,300-9,999	56	21	1	-	78	6	33.60	470	15,808
10,000-49,999	286	18	1	3	309	6	33.60	1,852	62,229
50,000-99,999	78	4	0	1	84	6	33.60	504	16,948
100,000-999,999	89	5	0	1	96	6	33.60	574	19,297
≥ 1 Million	17	1	-	0	18	6	33.60	105	3,539
Totals	**700**	**257**	**4**	**6**	**967**	0	**$ -**	**5,802**	**$ 194,992**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A), (B), (C) Taken from Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on an estimate of 0.5 hours per month needed to review each plant's reports.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.19c Burden and Cost to States Associated with Reviewing Plants' Reports on Technology Compliance Based on ICRSSL Occurrence Distribution, Alternative A3

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Unfiltered Plants Installing Ozone	Number of Plants Installing Bank Filtration	Total Plants	Annual Labor Hours per Plant	Labor Rate	Total Annual Labor Hours	Total Annual Costs
	A	B	C	D	E = A+B+C+D	F	G	H = E*F	I = G*H
<100	37	83	-	-	120	6	$ 33.60	718	$ 24,121
100-499	36	64	-	-	100	6	33.60	598	20,089
500-999	15	35	0	-	50	6	33.60	303	10,178
1,000-3,299	44	23	1	-	68	6	33.60	411	13,796
3,300-9,999	40	21	1	-	62	6	33.60	373	12,548
10,000-49,999	237	17	1	3	258	6	33.60	1,549	52,047
50,000-99,999	65	4	0	1	70	6	33.60	423	14,200
100,000-999,999	74	5	0	1	80	6	33.60	479	16,097
≥ 1 Million	14	1	-	0	15	6	33.60	89	2,996
Totals	**562**	**252**	**4**	**5**	**824**	0	**$ -**	**4,942**	**$ 166,072**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A), (B), (C) Taken from Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on an estimate of 0.5 hours per month needed to review each plant's reports.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.20a Burden and Cost to States Associated with Reviewing Plants' Reports on Technology Compliance Based on ICR Occurrence Distribution, Alternative A4

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Unfiltered Plants Installing Ozone	Number of Plants Installing Bank Filtration	Total Plants	Annual Labor Hours per Plant	Labor Rate	Total Annual Labor Hours	Total Annual Costs
	A	B	C	D	E = A+B+C+D	F	G	H = E*F	I = G*H
<100	36	83	-	-	118	6	$ 33.60	710	$ 23,874
100-499	35	64	-	-	99	6	33.60	591	19,868
500-999	15	35	0	-	50	6	33.60	300	10,084
1,000-3,299	38	22	1	-	62	6	33.60	369	12,413
3,300-9,999	35	20	1	-	57	6	33.60	340	11,439
10,000-49,999	174	16	1	2	194	6	33.60	1,164	39,116
50,000-99,999	48	4	0	1	53	6	33.60	319	10,711
100,000-999,999	53	5	0	1	59	6	33.60	352	11,819
≥ 1 Million	10	1	-	0	11	6	33.60	67	2,267
Totals	**445**	**250**	**4**	**3**	**702**	0	**$ -**	**4,213**	**$ 141,591**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A), (B), (C) Taken from Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on an estimate of 0.5 hours per month needed to review each plant's reports.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.20b Burden and Cost to States Associated with Reviewing Plants' Reports on Technology Compliance Based on ICRSSM Occurrence Distribution, Alternative A4

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Unfiltered Plants Installing Ozone	Number of Plants Installing Bank Filtration	Total Plants	Annual Labor Hours per Plant	Labor Rate	Total Annual Labor Hours	Total Annual Costs
	A	B	C	D	E = A+B+C+D	F	G	H = E*F	I = G*H
<100	24	81	-	-	105	6	$ 33.60	630	$ 21,174
100-499	24	62	-	-	87	6	33.60	519	17,446
500-999	11	34	0	-	45	6	33.60	272	9,141
1,000-3,299	30	22	1	-	53	6	33.60	317	10,653
3,300-9,999	28	20	1	-	49	6	33.60	295	9,900
10,000-49,999	106	16	1	1	124	6	33.60	745	25,027
50,000-99,999	30	4	0	0	34	6	33.60	205	6,905
100,000-999,999	32	5	0	0	37	6	33.60	222	7,451
≥ 1 Million	7	1	-	0	8	6	33.60	45	1,527
Totals	**289**	**246**	**4**	**2**	**542**	0	**$ -**	**3,250**	**$ 109,223**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A), (B), (C) Taken from Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on an estimate of 0.5 hours per month needed to review each plant's reports.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.20c Burden and Cost to States Associated with Reviewing Plants' Reports on Technology Compliance Based on ICRSSL Occurrence Distribution, Alternative A4

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Unfiltered Plants Installing Ozone	Number of Plants Installing Bank Filtration	Total Plants	Annual Labor Hours per Plant	Labor Rate	Total Annual Labor Hours	Total Annual Costs
	A	B	C	D	E = A+B+C+D	F	G	H = E*F	I = G*H
<100	17	81	-	-	98	6	$ 33.60	588	$ 19,763
100-499	19	62	-	-	80	6	33.60	481	16,180
500-999	9	34	0	-	43	6	33.60	257	8,650
1,000-3,299	25	22	1	-	48	6	33.60	290	9,754
3,300-9,999	24	20	1	-	45	6	33.60	271	9,098
10,000-49,999	76	16	1	1	94	6	33.60	565	18,982
50,000-99,999	22	4	0	0	26	6	33.60	157	5,272
100,000-999,999	23	5	0	0	28	6	33.60	167	5,604
≥ 1 Million	5	1	-	0	6	6	33.60	36	1,215
Totals	**219**	**244**	**4**	**1**	**469**	0	**$ -**	**2,813**	**$ 94,516**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A), (B), (C) Taken from Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on an estimate of 0.5 hours per month needed to review each plant's reports.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.21a Plant Burden and Cost for Preparing Reports Demonstrating Technology Compliance
Based on ICR Occurrence Distribution, Alternative A2

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Bank Filtration	Number of Unfiltered Plants Installing Ozone	Total Plants	Annual Labor Hours per Plant	Labor Rate	Total Annual Labor Hours	Total Annual Costs
	A	B	C	D	E=A+B+C+D	F	G	H=E*F	I=G*H
CWS									
<100	24	54	-	0.0	78	36	$ 21.44	2,823	$ 60,530
100-499	56	51	-	0.0	106	36	23.09	3,828	88,397
500-999	34	32	-	0.3	66	36	30.03	2,373	71,276
1,000-3,299	238	28	-	1.2	268	36	30.03	9,637	289,421
3,300-9,999	241	26	-	1.2	268	36	30.51	9,635	293,974
10,000-49,999	394	27	4	1.1	425	36	31.08	15,310	475,837
50,000-99,999	109	6	1	0.4	117	36	31.08	4,210	130,839
100,000-999,999	126	7	1	0.3	135	36	35.25	4,845	170,784
≥ 1 Million	22	1	0	0.0	24	36	35.25	851	29,989
National Totals	**1,243**	**232**	**6**	**4.5**	**1,486**			**53,513**	**$ 1,611,047**
NTNCWS									
<100	14	29	-	0.0	42	36	$ 21.44	1,526	$ 32,713
100-499	21	18	-	0.0	39	36	23.09	1,392	32,133
500-999	7	6	-	0.0	13	36	30.03	471	14,134
1,000-3,299	18	2	-	0.0	20	36	30.03	724	21,747
3,300-9,999	5	0	-	0.0	5	36	30.51	194	5,933
10,000-49,999	2	0	0	0.0	2	36	31.08	61	1,884
50,000-99,999	-	-	-	0.0	-	36	31.08	-	-
100,000-999,999	0	0	0	0.0	0	36	35.25	12	417
≥ 1 Million	-	-	-	0.0	-			-	-
National Totals	**67**	**54**	**0**	**0.0**	**122**			**4,379**	**$ 108,960**
TNCWS									
<100	95	11	-	0.0	106	36	$ 21.44	3,816	$ 81,819
100-499	46	5	-	0.0	51	36	23.09	1,829	42,224
500-999	8	1	-	0.0	9	36	30.03	321	9,627
1,000-3,299	14	0	-	0.0	15	36	30.03	531	15,957
3,300-9,999	4	0	-	0.0	4	36	30.51	149	4,557
10,000-49,999	4	0	0	0.0	4	36	31.08	147	4,565
50,000-99,999	-	-	-	0.0	-	36	31.08	-	-
100,000-999,999	0	0	0	0.0	0	36	35.25	12	424
≥ 1 Million	1	0	0	0.0	1	36	35.25	24	846
National Totals	**172**	**17**	**0**	**0.0**	**190**			**6,829**	**$ 160,020**
Grand Totals	**1,483**	**304**	**6**	**4.5**	**1,798**			**64,721**	**$ 1,880,026**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A), (B), (C) Taken from Appendix G of the LT2ESWTR.
(E) Based on an estimate of 3 hours per month to prepare each report.

(F) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.

Exhibit D.21b Plant Burden and Cost for Preparing Reports Demonstrating Technology Compliance
Based on ICRSSM Occurrence Distribution, Alternative A2

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Bank Filtration	Number of Unfiltered Plants Installing Ozone	Total Plants	Annual Labor Hours per Plant	Labor Rate	Total Annual Labor Hours	Total Annual Costs
	A	B	C	D	E=A+B+C+	F	G	H=E*F	I=G*H
CWS									
<100	14	53	-	0.0	67	36	$ 21.44	2,418	$ 51,848
100-499	33	48	-	0.0	81	36	23.09	2,915	67,308
500-999	20	30	-	0.3	51	36	30.03	1,826	54,842
1,000-3,299	171	24	-	1.2	196	36	30.03	7,051	211,746
3,300-9,999	172	22	-	1.2	195	36	30.51	7,025	214,334
10,000-49,999	333	22	4	1.1	359	36	31.08	12,929	401,831
50,000-99,999	92	5	1	0.4	99	36	31.08	3,560	110,642
100,000-999,999	105	6	1	0.3	113	36	35.25	4,057	142,988
≥ 1 Million	19	1	0	0.0	20	36	35.25	720	25,376
National Totals	**959**	**211**	**6**	**4.5**	**1,181**			**42,500**	**$ 1,280,914**
NTNCWS									
<100	8	28	-	0.0	36	36	$ 21.44	1,283	$ 27,501
100-499	12	17	-	0.0	28	36	23.09	1,020	23,554
500-999	4	6	-	0.0	10	36	30.03	344	10,341
1,000-3,299	13	1	-	0.0	14	36	30.03	513	15,394
3,300-9,999	4	0	-	0.0	4	36	30.51	137	4,168
10,000-49,999	1	0	0	0.0	1	36	31.08	51	1,571
50,000-99,999	-	-	-	0.0	-	36	31.08	-	-
100,000-999,999	0	0	0	0.0	0	36	35.25	10	344
≥ 1 Million	-	-	-	0.0	-	36	35.25	-	-
National Totals	**41**	**52**	**0**	**0.0**	**93**			**3,357**	**$ 82,874**
TNCWS									
<100	53	6	-	0.0	59	36	$ 21.44	2,133	$ 45,736
100-499	26	3	-	0.0	28	36	23.09	1,022	23,602
500-999	4	0	-	0.0	5	36	30.03	179	5,377
1,000-3,299	10	0	-	0.0	10	36	30.03	367	11,010
3,300-9,999	3	0	-	0.0	3	36	30.51	103	3,139
10,000-49,999	3	0	0	0.0	3	36	31.08	122	3,801
50,000-99,999	-	-	-	0.0	-	36	31.08	-	-
100,000-999,999	0	0	0	0.0	0	36	35.25	10	351
≥ 1 Million	1	0	0	0.0	1	36	35.25	20	698
National Totals	**100**	**10**	**0**	**0.0**	**110**			**3,956**	**$ 93,714**
Grand Totals	**1,101**	**273**	**6**	**4.5**	**1,384**			**49,813**	**$ 1,457,502**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A), (B), (C) Taken from Appendix G of the LT2ESWTR.

(E) Based on an estimate of 3 hours per month to prepare each report.

(F) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.

Exhibit D.21c Plant Burden and Cost for Preparing Reports Demonstrating Technology Compliance
Based on ICRSSL Occurrence Distribution, Alternative A2

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Bank Filtration	Number of Unfiltered Plants Installing Ozone	Total Plants	Annual Labor Hours per Plant	Labor Rate	Total Annual Labor Hours	Total Annual Costs
	A	B	C	D	E=A+B+C+D	F	G	H=E*F	I=G*H
CWS									
≤100	11	53	-	0.0	64	36	$ 21.44	2,314	$ 49,620
101-500	27	47	-	0.0	74	36	23.09	2,681	61,898
501-1000	17	30	-	0.3	47	36	30.03	1,686	50,624
1001-3,300	136	23	-	1.2	160	36	30.03	5,770	173,287
3,301-10,000	137	21	-	1.2	159	36	30.51	5,737	175,051
10,001-50,000	290	20	3	1.1	315	36	31.08	11,329	352,115
50,001-100,000	81	5	1	0.4	87	36	31.08	3,123	97,060
100,001-1 Million	91	6	1	0.3	98	36	35.25	3,532	124,502
> 1 Million	17	1	0	0.0	18	36	35.25	633	22,307
National Totals	**807**	**205**	**5**	**4.5**	**1,022**			**36,805**	**$ 1,106,465**
NTNCWS									
≤100	6	28	-	0.0	34	36	$ 21.44	1,220	$ 26,164
101-500	9	16	-	0.0	26	36	23.09	925	21,353
501-1000	3	5	-	0.0	9	36	30.03	312	9,367
1001-3,300	10	1	-	0.0	11	36	30.03	408	12,248
3,301-10,000	3	0	-	0.0	3	36	30.51	108	3,298
10,001-50,000	1	0	0	0.0	1	36	31.08	44	1,361
50,001-100,000	-	-	-	0.0	-	36	31.08	-	-
100,001-1 Million	0	0	0	0.0	0	36	35.25	8	296
> 1 Million	-	-	-	0.0	-	36	35.25	-	-
National Totals	**33**	**51**	**0**	**0.0**	**84**			**3,025**	**$ 74,088**
TNCWS									
<100	43	5	-	0.0	47	36	$ 21.44	1,701	$ 36,479
100-499	20	2	-	0.0	23	36	23.09	815	18,825
500-999	4	0	-	0.0	4	36	30.03	143	4,286
1,000-3,299	8	0	-	0.0	8	36	30.03	285	8,561
3,300-9,999	2	0	-	0.0	2	36	30.51	80	2,439
10,000-49,999	3	0	0	0.0	3	36	31.08	106	3,288
50,000-99,999	-	-	-	0.0	-	36	31.08	-	-
100,000-999,999	0	0	0	0.0	0	36	35.25	9	301
≥ 1 Million	0	0	0	0.0	0	36	35.25	17	600
National Totals	**80**	**8**	**0**	**0.0**	**88**			**3,156**	**$ 74,780**
Grand Totals	**920**	**264**	**6**	**4.5**	**1,194**			**42,986**	**$ 1,255,334**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A), (B), (C) Taken from Appendix G of the LT2ESWTR.
(E) Based on an estimate of 3 hours per month to prepare each report.

(F) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.

Exhibit D.22a Plant Burden and Cost for Preparing Reports Demonstrating Technology Compliance
Based on ICR Occurrence Distribution, Alternative A3

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Bank Filtration	Number of Unfiltered Plants Installing Ozone	Total Plants	Annual Labor Hours per Plant	Labor Rate	Total Annual Labor Hours	Total Annual Costs
	A	B	C	D	E=A+B+C+D	F	G	H=E*F	I=G*H
CWS									
<100	16	54	-	0.0	69	36	$ 21.44	2,486	$ 53,296
100-499	37	48	-	0.0	85	36	23.09	3,067	70,825
500-999	23	31	-	0.3	53	36	30.03	1,918	57,611
1,000-3,299	111	25	-	1.2	138	36	30.03	4,956	148,845
3,300-9,999	112	23	-	1.2	136	36	30.51	4,885	149,037
10,000-49,999	361	21	4	1.1	387	36	31.08	13,931	432,980
50,000-99,999	100	5	1	0.4	107	36	31.08	3,837	119,240
100,000-999,999	114	6	1	0.3	122	36	35.25	4,381	154,406
≥ 1 Million	20	1	0	0.0	21	36	35.25	773	27,240
National Totals	**893**	**214**	**6**	**4.5**	**1,118**			**40,233**	**$ 1,213,480**
NTNCWS									
<100	9	28	-	0.0	37	36	$ 21.44	1,323	$ 28,371
100-499	13	17	-	0.0	30	36	23.09	1,082	24,985
500-999	5	6	-	0.0	10	36	30.03	366	10,980
1,000-3,299	8	2	-	0.0	9	36	30.03	341	10,249
3,300-9,999	2	0	-	0.0	2	36	30.51	89	2,722
10,000-49,999	1	0	0	0.0	2	36	31.08	55	1,703
50,000-99,999	-	-	-	0.0	-	36	31.08	-	-
100,000-999,999	0	0	0	0.0	0	36	35.25	11	374
≥ 1 Million	-	-	-	0.0	-	36	35.25	-	-
National Totals	**38**	**52**	**0**	**0.0**	**91**			**3,267**	**$ 79,382**
TNCWS									
<100	60	7	-	0.0	67	36	$ 21.44	2,414	$ 51,753
100-499	29	3	-	0.0	32	36	23.09	1,157	26,708
500-999	5	1	-	0.0	6	36	30.03	203	6,093
1,000-3,299	6	0	-	0.0	6	36	30.03	233	7,004
3,300-9,999	2	0	-	0.0	2	36	30.51	65	1,976
10,000-49,999	4	0	0	0.0	4	36	31.08	133	4,123
50,000-99,999	-	-	-	0.0	-	36	31.08	-	-
100,000-999,999	0	0	0	0.0	0	36	35.25	11	381
≥ 1 Million	1	0	0	0.0	1	36	35.25	22	758
National Totals	**107**	**11**	**0**	**0.0**	**118**			**4,236**	**$ 98,796**
Grand Totals	**1,038**	**277**	**6**	**4.5**	**1,326**			**47,736**	**$ 1,391,658**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A), (B), (C) Taken from Appendix G of the LT2ESWTR.
(E) Based on an estimate of 3 hours per month to prepare each report.

(F) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.

Exhibit D.22b Plant Burden and Cost for Preparing Reports Demonstrating Technology Compliance
Based on ICRSSM Occurrence Distribution, Alternative A3

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Bank Filtration	Number of Unfiltered Plants Installing Ozone	Total Plants	Annual Labor Hours per Plant	Labor Rate	Total Annual Labor Hours	Total Annual Costs
	A	B	C	D	E=A+B+C+D	F	G	H=E*F	I=G*H
CWS									
<100	9	53	0.0	-	62	36	$ 21.44	2,227	$ 47,750
100-499	22	47	0.0	-	69	36	23.09	2,484	57,354
500-999	14	30	0.0	0	44	36	30.03	1,569	47,120
1,000-3,299	55	23	0.0	1	79	36	30.03	2,841	85,321
3,300-9,999	55	21	0.0	1	76	36	30.51	2,754	84,022
10,000-49,999	282	18	3.4	1	305	36	31.08	10,966	340,836
50,000-99,999	78	4	0.9	0	84	36	31.08	3,026	94,049
100,000-999,999	89	5	1.0	0	95	36	35.25	3,429	120,868
≥ 1 Million	16	1	0.1	-	17	36	35.25	615	21,691
National Totals	**620**	**201**	**5.4**	**4**	**831**			**29,912**	$ 899,009
NTNCWS									
<100	5	28	0.0	-	32	36	$ 21.44	1,168	$ 25,041
100-499	7	16	0.0	-	23	36	23.09	845	19,505
500-999	3	5	0.0	-	8	36	30.03	285	8,559
1,000-3,299	3	1	0.0	-	5	36	30.03	168	5,053
3,300-9,999	1	0	0.0	-	1	36	30.51	42	1,281
10,000-49,999	1	0	0.0	-	1	36	31.08	42	1,314
50,000-99,999	-	-	0.0	-	0	36	31.08	0	-
100,000-999,999	0	0	0.0	-	0	36	35.25	8	286
≥ 1 Million	-	-	0.0	-	0	36	35.25	0	-
National Totals	**20**	**51**	**0.0**	**-**	**71**			**2,558**	$ 61,039
TNCWS									
<100	33	4	0.0	-	37	36	$ 21.44	1,339	$ 28,704
100-499	16	2	0.0	-	18	36	23.09	642	14,813
500-999	3	0	0.0	-	3	36	30.03	113	3,379
1,000-3,299	3	0	0.0	-	3	36	30.03	99	2,959
3,300-9,999	1	0	0.0	-	1	36	30.51	27	818
10,000-49,999	3	0	0.0	-	3	36	31.08	102	3,171
50,000-99,999	-	-	0.0	-	0	36	31.08	0	-
100,000-999,999	0	0	0.0	-	0	36	35.25	8	292
≥ 1 Million	0	0	0.0	-	0	36	35.25	16	581
National Totals	**59**	**6**	**0.0**	**-**	**65**			**2,345**	$ 54,717
Grand Totals	**700**	**257**	**5.5**	**4**	**967**			34,815	$1,014,765

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A), (B), (C) Taken from Appendix G of the LT2ESWTR.
(E) Based on an estimate of 3 hours per month to prepare each report.

(F) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.

Exhibit D.22c Plant Burden and Cost for Preparing Reports Demonstrating Technology Compliance
Based on ICRSSL Occurrence Distribution, Alternative A3

System Size (Population Served)	Plants Installing UV	of Plants Installing MF/UF	Number of Plants Installing Bank Filtration	Number of Unfiltered Plants Installing Ozone	Total Plants	Labor Hours per Plant	Labor Rate	Annual Labor Hours	Total Annual Costs
	A	B	C	D	E=A+B+C+D	F	G	H=E*F	I=G*H
CWS									
<100	7	53	-	0.0	60	36	$ 21.44	2,153	$ 46,158
100-499	18	46	-	0.0	64	36	23.09	2,317	53,489
500-999	11	29	-	0.3	41	36	30.03	1,469	44,109
1,000-3,299	40	22	-	1.2	63	36	30.03	2,278	68,424
3,300-9,999	39	20	-	1.2	61	36	30.51	2,194	66,940
10,000-49,999	234	17	3	1.1	255	36	31.08	9,175	285,145
50,000-99,999	65	4	1	0.4	70	36	31.08	2,535	78,799
100,000-999,999	73	5	1	0.3	79	36	35.25	2,861	100,833
≥ 1 Million	14	1	0	0.0	14	36	35.25	521	18,381
National Totals	**502**	**198**	**5**	**4.5**	**708**			**25,503**	**$ 762,279**
NTNCWS									
<100	4	27	-	0.0	31	36	$ 21.44	1,123	$ 24,086
100-499	6	16	-	0.0	22	36	23.09	777	17,933
500-999	2	5	-	0.0	7	36	30.03	262	7,864
1,000-3,299	2	1	-	0.0	3	36	30.03	122	3,671
3,300-9,999	1	0	-	0.0	1	36	30.51	30	902
10,000-49,999	1	0	0	0.0	1	36	31.08	35	1,078
50,000-99,999	-	-	-	0.0	-	36	31.08	-	-
100,000-999,999	0	0	0	0.0	0	36	35.25	7	234
≥ 1 Million	-	-	-	0.0	-	36	35.25	-	-
National Totals	**15**	**50**	**0**	**0.0**	**65**			**2,355**	**$ 55,768**
TNCWS									
<100	26	3	-	0.0	29	36	$ 21.44	1,030	$ 22,090
100-499	12	1	-	0.0	14	36	23.09	494	11,400
500-999	2	0	-	0.0	2	36	30.03	87	2,600
1,000-3,299	2	0	-	0.0	2	36	30.03	63	1,883
3,300-9,999	0	0	-	0.0	0	36	30.51	17	514
10,000-49,999	2	0	0	0.0	2	36	31.08	84	2,596
50,000-99,999	-	-	-	0.0	-	36	31.08	-	-
100,000-999,999	0	0	0	0.0	0	36	35.25	7	239
≥ 1 Million	0	0	0	0.0	0	36	35.25	13	475
National Totals	**45**	**5**	**0**	**0.0**	**50**			**1,794**	**$ 41,796**
Grand Totals	**562**	**252**	**5**	**4.5**	**824**			**29,651**	**$ 859,844**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A), (B), (C) Taken from Appendix G of the LT2ESWTR.
(E) Based on an estimate of 3 hours per month to prepare each report.

(F) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.

Exhibit D.23a Plant Burden and Cost for Preparing Reports Demonstrating Technology Compliance
Based on ICR Occurrence Distribution, Alternative A4

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Bank Filtration	Number of Unfiltered Plants Installing Ozone	Total Plants	Annual Labor Hours per Plant	Labor Rate	Total Annual Labor Hours	Total Annual Costs
	A	B	C	D	E=A+B+C+D	F	G	H=E*F	I=G*H
CWS									
<100	7	53	-	0.0	60	36	$ 21.44	2,145	$ 45,994
100-499	18	46	-	0.0	64	36	23.09	2,299	53,091
500-999	11	29	-	0.3	40	36	30.03	1,457	43,771
1,000-3,299	35	21	-	1.2	57	36	30.03	2,063	61,949
3,300-9,999	34	20	-	1.2	56	36	30.51	2,003	61,131
10,000-49,999	172	16	2	1.1	192	36	31.08	6,899	214,416
50,000-99,999	48	4	1	0.4	53	36	31.08	1,912	59,437
100,000-999,999	53	5	1	0.3	58	36	35.25	2,101	74,050
≥ 1 Million	10	1	0	0.0	11	36	35.25	395	13,935
National Totals	**388**	**195**	**3**	**4.5**	**591**			**21,276**	**$ 627,774**
NTNCWS									
<100	4	27	-	0.0	31	36	$ 21.44	1,119	$ 23,988
100-499	6	16	-	0.0	21	36	23.09	770	17,771
500-999	2	5	-	0.0	7	36	30.03	259	7,786
1,000-3,299	2	1	-	0.0	3	36	30.03	105	3,141
3,300-9,999	0	0	-	0.0	1	36	30.51	25	774
10,000-49,999	1	0	0	0.0	1	36	31.08	25	780
50,000-99,999	-	-	-	0.0	-	36	31.08	-	-
100,000-999,999	0	0	0	0.0	0	36	35.25	5	165
≥ 1 Million	-	-	-	0.0	-	36	35.25	-	-
National Totals	**14**	**50**	**0**	**0.0**	**64**			**2,307**	**$ 54,403**
TNCWS									
<100	25	3	-	0.0	28	36	$ 21.44	999	$ 21,409
100-499	12	1	-	0.0	13	36	23.09	478	11,048
500-999	2	0	-	0.0	2	36	30.03	84	2,513
1,000-3,299	1	0	-	0.0	1	36	30.03	49	1,470
3,300-9,999	0	0	-	0.0	0	36	30.51	13	411
10,000-49,999	2	0	0	0.0	2	36	31.08	60	1,866
50,000-99,999	-	-	-	0.0	-	36	31.08	-	-
100,000-999,999	0	0	0	0.0	0	36	35.25	5	168
≥ 1 Million	0	0	0	0.0	0	36	35.25	9	333
National Totals	**43**	**4**	**0**	**0.0**	**47**			**1,697**	**$ 39,217**
Grand Totals	**445**	**250**	**3**	**4.5**	**702**			**25,280**	**$ 721,394**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A), (B), (C) Taken from Appendix G of the LT2ESWTR.
(E) Based on an estimate of 3 hours per month to prepare each report.

(F) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.

Exhibit D.23b Plant Burden and Cost for Preparing Reports Demonstrating Technology Compliance
Based on ICRSSM Occurrence Distribution, Alternative A4

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Bank Filtration	Number of Unfiltered Plants Installing Ozone	Total Plants	Annual Labor Hours per Plant	Labor Rate	Total Annual Labor Hours	Total Annual Costs
	A	B	C	D	E=A+B+C+D	F	G	H=E*F	I=G*H
CWS									
<100	5	52	-	0.0	57	36	$ 21.44	2,061	$ 44,198
100-499	13	46	-	0.0	59	36	23.09	2,110	48,728
500-999	8	29	-	0.3	37	36	30.03	1,345	40,378
1,000-3,299	28	21	-	1.2	50	36	30.03	1,788	53,707
3,300-9,999	27	20	-	1.2	48	36	30.51	1,739	53,069
10,000-49,999	104	16	1	1.1	123	36	31.08	4,419	137,358
50,000-99,999	30	4	0	0.4	34	36	31.08	1,233	38,317
100,000-999,999	32	5	0	0.3	37	36	35.25	1,325	46,701
≥ 1 Million	7	1	0	0.0	7	36	35.25	267	9,424
National Totals	**253**	**193**	**2**	**4.5**	**452**			**16,289**	**$ 471,881**
NTNCWS									
<100	2	27	-	0.0	30	36	$ 21.44	1,069	$ 22,910
100-499	4	16	-	0.0	19	36	23.09	693	15,996
500-999	1	5	-	0.0	6	36	30.03	233	7,003
1,000-3,299	1	1	-	0.0	2	36	30.03	82	2,467
3,300-9,999	0	0	-	0.0	1	36	30.51	20	595
10,000-49,999	0	0	0	0.0	0	36	31.08	15	454
50,000-99,999	-	-	-	0.0	-	36	31.08	-	-
100,000-999,999	0	0	0	0.0	0	36	35.25	3	93
≥ 1 Million	-	-	-	0.0	-	36	35.25	-	-
National Totals	**9**	**50**	**0**	**0.0**	**59**			**2,113**	**$ 49,518**
TNCWS									
<100	16	2	-	0.0	18	36	$ 21.44	650	$ 13,945
100-499	8	1	-	0.0	9	36	23.09	312	7,197
500-999	1	0	-	0.0	2	36	30.03	54	1,635
1,000-3,299	1	0	-	0.0	1	36	30.03	31	945
3,300-9,999	0	0	-	0.0	0	36	30.51	9	267
10,000-49,999	1	0	0	0.0	1	36	31.08	34	1,070
50,000-99,999	-	-	-	0.0	-	36	31.08	-	-
100,000-999,999	0	0	0	0.0	0	36	35.25	3	95
≥ 1 Million	0	0	0	0.0	0	36	35.25	5	188
National Totals	**28**	**3**	**0**	**0.0**	**31**			**1,099**	**$ 25,343**
Grand Totals	**289**	**246**	**2**	**4.5**	**542**			**19,501**	**$ 546,742**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A), (B), (C) Taken from Appendix G of the LT2ESWTR.
(E) Based on an estimate of 3 hours per month to prepare each report.

(F) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.

Exhibit D.23c Plant Burden and Cost for Preparing Reports Demonstrating Technology Compliance
Based on ICRSSL Occurrence Distribution, Alternative A4

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Bank Filtration	Number of Unfiltered Plants Installing Ozone	Total Plants	Annual Labor Hours per Plant	Labor Rate	Total Annual Labor Hours	Total Annual Costs
	A	B	C	D	E=A+B+C+D	F	G	H=E*F	I=G*H
CWS									
<100	4	52	-	-	56	36	$ 21.44	2,018	$ 43,260
100-499	10	46	-	-	56	36	23.09	2,012	46,449
500-999	7	29	-	0.3	36	36	30.03	1,286	38,608
1,000-3,299	24	21	-	1.2	46	36	30.03	1,648	49,500
3,300-9,999	23	20	-	1.2	44	36	30.51	1,602	48,868
10,000-49,999	75	16	1	1.1	93	36	31.08	3,356	104,293
50,000-99,999	22	4	0	0.4	26	36	31.08	941	29,253
100,000-999,999	23	5	0	0.3	28	36	35.25	997	35,141
≥ 1 Million	5	1	0	0.0	6	36	35.25	213	7,519
National Totals	**193**	**193**	**1**	**4.5**	**391**			**14,072**	**$ 402,893**
NTNCWS									
<100	2	27	-	0.0	29	36	$ 21.44	1,042	$ 22,346
100-499	3	16	-	0.0	18	36	23.09	653	15,069
500-999	1	5	-	0.0	6	36	30.03	220	6,594
1,000-3,299	1	1	-	0.0	2	36	30.03	71	2,123
3,300-9,999	0	0	-	0.0	0	36	30.51	16	502
10,000-49,999	0	0	0	0.0	0	36	31.08	10	314
50,000-99,999	-	-	-	0.0	-	36	31.08	-	-
100,000-999,999	0	0	0	0.0	0	36	35.25	2	63
≥ 1 Million	-	-	-	0.0	-	36	35.25	-	-
National Totals	**6**	**49**	**0**	**0.0**	**56**			**2,014**	**$ 47,012**
TNCWS									
<100	12	1	-	0.0	13	36	$ 21.44	469	$ 10,046
100-499	6	1	-	0.0	6	36	23.09	225	5,184
500-999	1	0	-	0.0	1	36	30.03	39	1,178
1,000-3,299	1	0	-	0.0	1	36	30.03	23	677
3,300-9,999	0	0	-	0.0	0	36	30.51	6	192
10,000-49,999	1	0	0	0.0	1	36	31.08	23	729
50,000-99,999	-	-	-	0.0	-	36	31.08	-	-
100,000-999,999	0	0	0	0.0	0	36	35.25	2	64
≥ 1 Million	0	0	0	0.0	0	36	35.25	4	127
National Totals	**20**	**2**	**0**	**0.0**	**22**			**790**	**$ 18,197**
Grand Totals	**219**	**244**	**1**	**4.5**	**469**			**16,876**	**$ 468,102**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A), (B), (C) Taken from Appendix G of the LT2ESWTR.
(E) Based on an estimate of 3 hours per month to prepare each report.

(F) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.

Exhibit D.24a Plant Burden and Cost for Preparing Disinfection Benchmark Reports
Based on ICR Occurrence Distribution, Alternative A2

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Ozone	Total Number of Plants Changing Disinfection	Labor Hours per Plant	Labor Rate	Total Labor Hours	Total Costs
	A	B	C	D = A+B+C	E	F	G = D*E	H = F*G
CWS								
<100	24	54	-	78	4	$ 21.44	314	$ 6,726
100-499	56	51	-	106	4	23.09	425	9,822
500-999	34	32	0	66	4	30.03	264	7,920
1,000-3,299	238	28	1	268	4	30.03	1,071	32,158
3,300-9,999	241	26	3	270	4	30.51	1,079	32,914
10,000-49,999	394	27	22	443	4	31.08	1,771	55,031
50,000-99,999	109	6	7	122	4	31.08	489	15,196
100,000-999,999	126	7	8	141	4	35.25	564	19,863
≥ 1 Million	22	1	1	25	4	35.25	99	3,489
National Totals	**1,243**	**232**	**43**	**1,519**			**6,074**	**$ 183,117**
NTNCWS								
<100	14	29	-	42	4	$ 21.44	170	$ 3,635
100-499	21	18	-	39	4	23.09	155	3,570
500-999	7	6	-	13	4	30.03	52	1,570
1,000-3,299	18	2	-	20	4	30.03	80	2,416
3,300-9,999	5	0	0	5	4	30.51	22	665
10,000-49,999	2	0	0	2	4	31.08	7	218
50,000-99,999	-	-	-	-	4	31.08	-	-
100,000-999,999	0	0	0	0	4	35.25	1	49
≥ 1 Million	-	-	-	-	4	35.25	-	-
National Totals	**67**	**54**	**0**	**122**			**487**	**$ 12,124**
TNCWS								
<100	95	11	-	106	4	$ 21.44	424	$ 9,091
100-499	46	5	-	51	4	23.09	203	4,692
500-999	8	1	-	9	4	30.03	36	1,070
1,000-3,299	14	0	-	15	4	30.03	59	1,773
3,300-9,999	4	0	0	4	4	30.51	17	511
10,000-49,999	4	0	0	4	4	31.08	17	530
50,000-99,999	-	-	-	-	4	31.08	-	-
100,000-999,999	0	0	0	0	4	35.25	1	50
≥ 1 Million	1	0	0	1	4	35.25	3	99
National Totals	**172**	**17**	**0**	**190**	**-**	**-**	**760**	**$ 17,814**
Grand Totals	**1,483**	**304**	**43**	**1,830**			**7,321**	**213,055**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A) - (D) From Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on expert opinion.
(G) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on

Exhibit D.24b Plant Burden and Cost for Preparing Disinfection Benchmark Reports
Based on ICRSSM Occurrence Distribution, Alternative A2

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Ozone	Total Number of Plants Changing Disinfection	Labor Hours per Plant	Labor Rate	Total Labor Hours	Total Costs
	A	B	C	D = A+B+C	E	F	G = D*E	H = F*G
CWS								
<100	14	53	-	67	4	$ 21.44	269	$ 5,761
100-499	33	48	-	81	4	23.09	324	7,479
500-999	20	30	0	51	4	30.03	203	6,094
1,000-3,299	171	24	1	196	4	30.03	783	23,527
3,300-9,999	172	22	3	197	4	30.51	787	24,022
10,000-49,999	333	22	18	372	4	31.08	1,489	46,288
50,000-99,999	92	5	5	103	4	31.08	411	12,787
100,000-999,999	105	6	6	117	4	35.25	470	16,555
≥ 1 Million	19	1	1	21	4	35.25	83	2,939
National Totals	**959**	**211**	**35**	**1,205**			**4,820**	**$ 145,452**
NTNCWS								
<100	8	28	-	36	4	$ 21.44	143	$ 3,056
100-499	12	17	-	28	4	23.09	113	2,617
500-999	4	6	-	10	4	30.03	38	1,149
1,000-3,299	13	1	-	14	4	30.03	57	1,710
3,300-9,999	4	0	0	4	4	30.51	15	468
10,000-49,999	1	0	0	1	4	31.08	6	182
50,000-99,999	-	-	-	-	4	31.08	-	-
100,000-999,999	0	0	0	0	4	35.25	1	40
≥ 1 Million	-	-	-	-	4	35.25	-	-
National Totals	**41**	**52**	**0**	**93**	**-**	**-**	**373**	**$ 9,221**
TNCWS								
<100	53	6	-	59	4	$ 21.44	237	$ 5,082
100-499	26	3	-	28	4	23.09	114	2,622
500-999	4	0	-	5	4	30.03	20	597
1,000-3,299	10	0	-	10	4	30.03	41	1,223
3,300-9,999	3	0	0	3	4	30.51	12	352
10,000-49,999	3	0	0	4	4	31.08	14	439
50,000-99,999	-	-	-	-	4	31.08	-	-
100,000-999,999	0	0	0	0	4	35.25	1	41
≥ 1 Million	1	0	0	1	4	35.25	2	81
National Totals	**100**	**10**	**0**	**110**	**-**	**-**	**440**	**$ 10,439**
Grand Totals	**1,101**	**273**	**35**	**1,408**	**-**	**-**	**5,634**	**$ 165,112**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A) - (D) From Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on expert opinion.
(G) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on

Exhibit D.24c Plant Burden and Cost for Preparing Disinfection Benchmark Reports
Based on ICRSSL Occurrence Distribution, Alternative A2

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Ozone	Total Number of Plants Changing Disinfection	Labor Hours per Plant	Labor Rate	Total Labor Hours	Total Costs
	A	B	C	D = A+B+C	E	F	G = D*E	H = F*G
CWS								
<100	11	53	-	64	4	$ 21.44	257	$ 5,513
100-499	27	47	-	74	4	23.09	298	6,878
500-999	17	30	0	47	4	30.03	187	5,625
1,000-3,299	136	23	1	160	4	30.03	641	19,254
3,300-9,999	137	21	3	161	4	30.51	643	19,619
10,000-49,999	290	20	15	325	4	31.08	1,299	40,374
50,000-99,999	81	5	4	90	4	31.08	359	11,160
100,000-999,999	91	6	5	102	4	35.25	407	14,344
≥ 1 Million	17	1	1	18	4	35.25	73	2,573
National Totals	**807**	**205**	**29**	**1,041**			**4,164**	**$ 125,340**
NTNCWS								
<100	6	28	-	34	4	$ 21.44	136	$ 2,907
100-499	9	16	-	26	4	23.09	103	2,373
500-999	3	5	-	9	4	30.03	35	1,041
1,000-3,299	10	1	-	11	4	30.03	45	1,361
3,300-9,999	3	0	0	3	4	30.51	12	370
10,000-49,999	1	0	0	1	4	31.08	5	157
50,000-99,999	-	-	-	-	4	31.08	-	-
100,000-999,999	0	0	0	0	4	35.25	1	34
≥ 1 Million	-	-	-	-	4	35.25	-	-
National Totals	**33**	**51**	**0**	**84**			**336**	**$ 8,242**
TNCWS								
<100	43	5	-	47	4	$ 21.44	189	$ 4,053
100-499	20	2	-	23	4	23.09	91	2,092
500-999	4	0	-	4	4	30.03	16	476
1,000-3,299	8	0	-	8	4	30.03	32	951
3,300-9,999	2	0	0	2	4	30.51	9	274
10,000-49,999	3	0	0	3	4	31.08	12	378
50,000-99,999	-	-	-	-	4	31.08	-	-
100,000-999,999	0	0	0	0	4	35.25	1	35
≥ 1 Million	0	0	0	0	4	35.25	2	70
National Totals	**80**	**8**	**0**	**88**			**351**	**$ 8,329**
Grand Totals	**920**	**264**	**29**	**1,213**			**4,852**	**141,911**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A) - (D) From Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on expert opinion.
(G) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on

Exhibit D.25a Plant Burden and Cost for Preparing Disinfection Benchmark Reports
Based on ICR Occurrence Distribution, Alternative A3

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Ozone	Total Number of Plants Changing Disinfection	Labor Hours per Plant	Labor Rate	Total Labor Hours	Total Costs
	A	B	C	D = A+B+C	E	F	G = D*E	H = F*G
CWS								
<100	16	54	-	69	4	$ 21.44	276	$ 5,922
100-499	37	48	-	85	4	23.09	341	7,869
500-999	23	31	0	53	4	30.03	213	6,401
1,000-3,299	111	25	1	138	4	30.03	551	16,538
3,300-9,999	112	23	3	138	4	30.51	551	16,820
10,000-49,999	361	21	16	398	4	31.08	1,593	49,503
50,000-99,999	100	5	5	110	4	31.08	440	13,663
100,000-999,999	114	6	5	125	4	35.25	502	17,694
≥ 1 Million	20	1	1	22	4	35.25	89	3,129
National Totals	**893**	**214**	**32**	**1,139**	**-**	**-**	**4,555**	**$ 137,540**
NTNCWS								
<100	9	28	-	37	4	$ 21.44	147	$ 3,152
100-499	13	17	-	30	4	23.09	120	2,776
500-999	5	6	-	10	4	30.03	41	1,220
1,000-3,299	8	2	-	9	4	30.03	38	1,139
3,300-9,999	2	0	0	3	4	30.51	10	308
10,000-49,999	1	0	0	2	4	31.08	6	195
50,000-99,999	-	-	-	-	4	31.08	-	-
100,000-999,999	0	0	0	0	4	35.25	1	43
≥ 1 Million	-	-	-	-	4	35.25	-	-
National Totals	**38**	**52**	**0**	**91**	**-**	**-**	**363**	**$ 8,833**
TNCWS								
<100	60	7	-	67	4	$ 21.44	268	$ 5,750
100-499	29	3	-	32	4	23.09	129	2,968
500-999	5	1	-	6	4	30.03	23	677
1,000-3,299	6	0	-	6	4	30.03	26	778
3,300-9,999	2	0	0	2	4	30.51	7	224
10,000-49,999	4	0	0	4	4	31.08	15	472
50,000-99,999	-	-	-	-	4	31.08	-	-
100,000-999,999	0	0	0	0	4	35.25	1	44
≥ 1 Million	1	0	0	1	4	35.25	2	87
National Totals	**107**	**11**	**0**	**118**	**-**	**-**	**471**	**$ 11,001**
Grand Totals	**1,038**	**277**	**32**	**1,348**	**-**	**-**	**5,390**	**$ 157,374**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A) - (D) From Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on expert opinion.
(G) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on

Exhibit D.25b Plant Burden and Cost for Preparing Disinfection Benchmark Reports
Based on ICRSSM Occurrence Distribution, Alternative A3

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Ozone	Total Number of Plants Changing Disinfection	Labor Hours per Plant	Labor Rate	Total Labor Hours	Total Costs
	A	B	C	D = A+B+C	E	F	G = D*E	H = F*G
CWS								
<100	9	53	-	62	4	$ 21.44	247	$ 5,306
100-499	22	47	-	69	4	23.09	276	6,373
500-999	14	30	0	44	4	30.03	174	5,236
1,000-3,299	55	23	1	79	4	30.03	316	9,480
3,300-9,999	55	21	3	78	4	30.51	313	9,547
10,000-49,999	282	18	12	312	4	31.08	1,250	38,844
50,000-99,999	78	4	4	86	4	31.08	345	10,732
100,000-999,999	89	5	4	98	4	35.25	391	13,789
≥ 1 Million	16	1	1	18	4	35.25	70	2,480
National Totals	**620**	**201**	**25**	**846**	**-**	**-**	**3,383**	**$ 101,787**
NTNCWS								
<100	5	28	-	32	4	$ 21.44	130	$ 2,782
100-499	7	16	-	23	4	23.09	94	2,167
500-999	3	5	-	8	4	30.03	32	951
1,000-3,299	3	1	-	5	4	30.03	19	561
3,300-9,999	1	0	0	1	4	30.51	5	147
10,000-49,999	1	0	0	1	4	31.08	5	150
50,000-99,999	-	-	-	-	4	31.08	-	-
100,000-999,999	0	0	0	0	4	35.25	1	33
≥ 1 Million	-	-	-	-	4	35.25	-	-
National Totals	**20**	**51**	**0**	**71**	**-**	**-**	**285**	**$ 6,792**
TNCWS								
<100	33	4	-	37	4	$ 21.44	149	$ 3,189
100-499	16	2	-	18	4	23.09	71	1,646
500-999	3	0	-	3	4	30.03	13	375
1,000-3,299	3	0	-	3	4	30.03	11	329
3,300-9,999	1	0	0	1	4	30.51	3	95
10,000-49,999	3	0	0	3	4	31.08	12	362
50,000-99,999	-	-	-	-	4	31.08	-	-
100,000-999,999	0	0	0	0	4	35.25	1	33
≥ 1 Million	0	0	0	0	4	35.25	2	67
National Totals	**59**	**6**	**0**	**65**			**261**	**$ 6,097**
Grand Totals	**700**	**257**	**25**	**982**			**3,929**	**$ 114,675**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A) - (D) From Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on expert opinion.
(G) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on

Exhibit D.25c Plant Burden and Cost for Preparing Disinfection Benchmark Reports
Based on ICRSSL Occurrence Distribution, Alternative A3

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Ozone	Total Number of Plants Changing Disinfection	Labor Hours per Plant	Labor Rate	Total Labor Hours	Total Costs
	A	B	C	D = A+B+C	E	F	G = D*E	H = F*G
CWS								
<100	7	53	-	60	4	$ 21.44	239	5,129
100-499	18	46	-	64	4	23.09	257	5,943
500-999	11	29	0	41	4	30.03	163	4,901
1,000-3,299	40	22	1	63	4	30.03	253	7,603
3,300-9,999	39	20	3	62	4	30.51	250	7,613
10,000-49,999	234	17	10	261	4	31.08	1,044	32,453
50,000-99,999	65	4	3	72	4	31.08	289	8,977
100,000-999,999	73	5	3	81	4	35.25	326	11,484
≥ 1 Million	14	1	0	15	4	35.25	60	2,098
National Totals	**502**	**198**	**21**	**720**			**2,881**	**$ 86,200**
NTNCWS								
<100	4	27	-	31	4	$ 21.44	125	2,676
100-499	6	16	-	22	4	23.09	86	1,993
500-999	2	5	-	7	4	30.03	29	874
1,000-3,299	2	1	-	3	4	30.03	14	408
3,300-9,999	1	0	0	1	4	30.51	3	104
10,000-49,999	1	0	0	1	4	31.08	4	123
50,000-99,999	-	-	-	-	4	31.08	-	-
100,000-999,999	0	0	0	0	4	35.25	1	27
≥ 1 Million	-	-	-	-	4	35.25	-	-
National Totals	**15**	**50**	**0**	**65**			**262**	**$ 6,204**
TNCWS								
<100	26	3	-	29	4	$ 21.44	114	2,454
100-499	12	1	-	14	4	23.09	55	1,267
500-999	2	0	-	2	4	30.03	10	289
1,000-3,299	2	0	-	2	4	30.03	7	209
3,300-9,999	0	0	0	0	4	30.51	2	60
10,000-49,999	2	0	0	2	4	31.08	10	296
50,000-99,999	-	-	-	-	4	31.08	-	-
100,000-999,999	0	0	0	0	4	35.25	1	27
≥ 1 Million	0	0	0	0	4	35.25	2	55
National Totals	**45**	**5**	**0**	**50**	**-**	**-**	**200**	**$ 4,658**
Grand Totals	**562**	**252**	**21**	**836**	**-**	**-**	**3,342**	**$ 97,062**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A) - (D) From Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on expert opinion.
(G) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on

Exhibit D.26a Plant Burden and Cost for Preparing Disinfection Benchmark Reports
Based on ICR Occurrence Distribution, Alternative A4

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Ozone	Total Number of Plants Changing Disinfection	Labor Hours per Plant	Labor Rate	Total Labor Hours	Total Costs
	A	B	C	D = A+B+C	E	F	G = D*E	H = F*G
CWS								
<100	7	53	-	60	4	$ 21.44	238	$ 5,110
100-499	18	46	-	64	4	23.09	255	5,899
500-999	11	29	0	40	4	30.03	162	4,863
1,000-3,299	35	21	1	57	4	30.03	229	6,883
3,300-9,999	34	20	2	56	4	30.51	225	6,872
10,000-49,999	172	16	5	193	4	31.08	773	24,034
50,000-99,999	48	4	1	54	4	31.08	214	6,665
100,000-999,999	53	5	2	59	4	35.25	236	8,312
≥ 1 Million	10	1	0	11	4	35.25	45	1,571
National Totals	**388**	**195**	**11**	**595**			**2,378**	**$ 70,211**
NTNCWS								
<100	4	27	-	31	4	$ 21.44	124	$ 2,665
100-499	6	16	-	21	4	23.09	86	1,975
500-999	2	5	-	7	4	30.03	29	865
1,000-3,299	2	1	-	3	4	30.03	12	349
3,300-9,999	0	0	0	1	4	30.51	3	88
10,000-49,999	1	0	0	1	4	31.08	3	88
50,000-99,999	-	-	-	-	4	31.08	-	-
100,000-999,999	0	0	0	0	4	35.25	1	18
≥ 1 Million	-	-	-	-	4	35.25	-	-
National Totals	**14**	**50**	**0**	**64**			**256**	**$ 6,048**
TNCWS								
<100	25	3	-	28	4	$ 21.44	111	$ 2,379
100-499	12	1	-	13	4	23.09	53	1,228
500-999	2	0	-	2	4	30.03	9	279
1,000-3,299	1	0	-	1	4	30.03	5	163
3,300-9,999	0	0	0	0	4	30.51	2	47
10,000-49,999	2	0	0	2	4	31.08	7	209
50,000-99,999	-	-	-	-	4	31.08	-	-
100,000-999,999	0	0	0	0	4	35.25	1	19
≥ 1 Million	0	0	0	0	4	35.25	1	38
National Totals	**43**	**4**	**0**	**47**			**189**	**$ 4,362**
Grand Totals	**445**	**250**	**11**	**706**			**2,824**	**$ 80,621**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A) - (D) From Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on expert opinion.
(G) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on

Exhibit D.26b Plant Burden and Cost for Preparing Disinfection Benchmark Reports
Based on ICRSSM Occurrence Distribution, Alternative A4

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Ozone	Total Number of Plants Changing Disinfection	Labor Hours per Plant	Labor Rate	Total Labor Hours	Total Costs
	A	B	C	D = A+B+C	E	F	G = D*E	H = F*G
CWS								
<100	5	52	-	57	4	$ 21.44	229	$ 4,911
100-499	13	46	-	59	4	23.09	234	5,414
500-999	8	29	0	37	4	30.03	149	4,486
1,000-3,299	28	21	1	50	4	30.03	199	5,967
3,300-9,999	27	20	1	49	4	30.51	194	5,929
10,000-49,999	104	16	3	123	4	31.08	492	15,287
50,000-99,999	30	4	1	34	4	31.08	137	4,266
100,000-999,999	32	5	1	37	4	35.25	148	5,205
≥ 1 Million	7	1	0	7	4	35.25	30	1,056
National Totals	**253**	**193**	**7**	**453**			**1,813**	**$ 52,521**
NTNCWS	-							
<100	2	27	-	30	4	$ 21.44	119	$ 2,546
100-499	4	16	-	19	4	23.09	77	1,777
500-999	1	5	-	6	4	30.03	26	778
1,000-3,299	1	1	-	2	4	30.03	9	274
3,300-9,999	0	0	0	1	4	30.51	2	67
10,000-49,999	0	0	0	0	4	31.08	2	51
50,000-99,999	-	-	-	-	4	31.08	-	-
100,000-999,999	0	0	0	0	4	35.25	0	10
≥ 1 Million	-	-	-	-	4	35.25	-	-
National Totals	**9**	**50**	**0**	**59**			**235**	**$ 5,503**
TNCWS								
<100	16	2	-	18	4	$ 21.44	72	$ 1,549
100-499	8	1	-	9	4	23.09	35	800
500-999	1	0	-	2	4	30.03	6	182
1,000-3,299	1	0	-	1	4	30.03	3	105
3,300-9,999	0	0	0	0	4	30.51	1	30
10,000-49,999	1	0	0	1	4	31.08	4	119
50,000-99,999	-	-	-	-	4	31.08	-	-
100,000-999,999	0	0	0	0	4	35.25	0	11
≥ 1 Million	0	0	0	0	4	35.25	1	21
National Totals	**28**	**3**	**0**	**31**			**122**	**$ 2,817**
Grand Totals	**289**	**246**	**7**	**542**			**2,170**	**$ 60,841**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A) - (D) From Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on expert opinion.
(G) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on

Exhibit D.26c Plant Burden and Cost for Preparing Disinfection Benchmark Reports
Based on ICRSSL Occurrence Distribution, Alternative A4

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Ozone	Total Number of Plants Changing Disinfection	Labor Hours per Plant	Labor Rate	Total Labor Hours	Total Costs
	A	B	C	D = A+B+C	E	F	G = D*E	H = F*G
CWS								
<100	4	52	-	56	4	$ 21.44	224	$ 4,807
100-499	10	46	-	56	4	23.09	224	5,161
500-999	7	29	0	36	4	30.03	143	4,290
1,000-3,299	24	21	1	46	4	30.03	183	5,500
3,300-9,999	23	20	1	45	4	30.51	179	5,447
10,000-49,999	75	16	2	93	4	31.08	372	11,574
50,000-99,999	22	4	1	26	4	31.08	104	3,247
100,000-999,999	23	5	1	28	4	35.25	111	3,905
≥ 1 Million	5	1	0	6	4	35.25	24	840
National Totals	**193**	**193**	**6**	**391**			**1,564**	**$ 44,770**
NTNCWS								
<100	2	27	-	29	4	$ 21.44	116	$ 2,483
100-499	3	16	-	18	4	23.09	73	1,674
500-999	1	5	-	6	4	30.03	24	733
1,000-3,299	1	1	-	2	4	30.03	8	236
3,300-9,999	0	0	0	0	4	30.51	2	56
10,000-49,999	0	0	0	0	4	31.08	1	35
50,000-99,999	-	-	-	-	4	31.08	-	-
100,000-999,999	0	0	0	0	4	35.25	0	7
≥ 1 Million	-	-	-	-	4	35.25	-	-
National Totals	**6**	**49**	**0**	**56**			**224**	**$ 5,224**
TNCWS								
<100	12	1	-	13	4	$ 21.44	52	$ 1,116
100-499	6	1	-	6	4	23.09	25	576
500-999	1	0	-	1	4	30.03	4	131
1,000-3,299	1	0	-	1	4	30.03	3	75
3,300-9,999	0	0	0	0	4	30.51	1	22
10,000-49,999	1	0	0	1	4	31.08	3	81
50,000-99,999	-	-	-	-	4	31.08	-	-
100,000-999,999	0	0	0	0	4	35.25	0	7
≥ 1 Million	0	0	0	0	4	35.25	0	14
National Totals	**20**	**2**	**0**	**22**			**88**	**$ 2,022**
Grand Totals	**219**	**244**	**6**	**469**			**1,875**	**$ 52,016**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A) - (D) From Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on expert opinion.
(G) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on

Exhibit D.27a State Burden and Cost for Reviewing Disinfection Benchmark Reports Based on ICR Occurrence Distribution, Alternative A2

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Ozone	Total Number of Plants Changing Disinfection	Labor Hours per Plant	Labor Rate	Total Labor Hours	Total Costs
	A	B	C	D = A + B + C	E	F	G = D*E	H = F*G
<100	133	94	-	227	2	$ 33.60	454	$ 15,244
100-499	123	73	-	196	2	33.60	392	13,159
500-999	49	39	0	88	2	33.60	176	5,908
1,000-3,299	271	30	1	303	2	33.60	605	20,336
3,300-9,999	250	26	3	279	2	33.60	559	18,773
10,000-49,999	399	27	23	449	2	33.60	897	30,155
50,000-99,999	109	6	7	122	2	33.60	244	8,215
100,000-999,999	126	7	8	142	2	33.60	283	9,515
≥ 1 Million	23	1	1	25	2	33.60	51	1,710
National Totals	**1,483**	**304**	**43**	**1,830**			**3,661**	**$ 123,015**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A) - (D) From Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on expert opinion.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.27b State Burden and Cost for Reviewing Disinfection Benchmark Reports Based on ICRSSM Occurrence Distribution, Alternative A2

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Ozone	Total Number of Plants Changing Disinfection	Labor Hours per Plant	Labor Rate	Total Labor Hours	Total Costs
	A	B	C	D = A + B + C	E	F	G = D*E	H = F*G
<100	75	87	-	162	2	$ 33.60	324	$ 10,892
100-499	70	67	-	138	2	33.60	275	9,255
500-999	29	36	0	65	2	33.60	131	4,386
1,000-3,299	194	26	1	220	2	33.60	441	14,805
3,300-9,999	178	22	3	204	2	33.60	407	13,680
10,000-49,999	337	22	18	377	2	33.60	755	25,360
50,000-99,999	92	5	5	103	2	33.60	206	6,913
100,000-999,999	106	6	6	118	2	33.60	236	7,930
≥ 1 Million	19	1	1	21	2	33.60	43	1,440
National Totals	**1,101**	**273**	**35**	**1,408**			**2,817**	**$ 94,661**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A) - (D) From Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on expert opinion.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.27c State Burden and Cost for Reviewing Disinfection Benchmark Reports Based on ICRSSL Occurrence Distribution, Alternative A2

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Ozone	Total Number of Plants Changing Disinfection	Labor Hours per Plant	Labor Rate	Total Labor Hours	Total Costs
	A	B	C	D = A + B + C	E	F	G = D*E	H = F*G
<100	60	86	-	145	2	$ 33.60	291	$ 9,776
100-499	57	66	-	123	2	33.60	246	8,253
500-999	23	36	0	59	2	33.60	119	3,996
1,000-3,299	154	24	1	180	2	33.60	359	12,066
3,300-9,999	142	21	3	166	2	33.60	332	11,158
10,000-49,999	294	20	15	329	2	33.60	658	22,116
50,000-99,999	81	5	4	90	2	33.60	180	6,033
100,000-999,999	92	6	5	102	2	33.60	204	6,871
≥ 1 Million	17	1	1	19	2	33.60	37	1,260
National Totals	**920**	**264**	**29**	**1,213**			**2,426**	**$ 81,529**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A) - (D) From Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on expert opinion.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.28a State Burden and Cost for Reviewing Disinfection Benchmark Reports Based on ICR Occurrence Distribution, Alternative A3

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Ozone	Total Number of Plants Changing Disinfection	Labor Hours per Plant	Labor Rate	Total Labor Hours	Total Costs
	A	B	C	D = A + B + C	E	F	G = D*E	H = F*G
<100	85	88	-	173	2	$ 33.60	346	$ 11,618
100-499	79	68	-	147	2	33.60	295	9,906
500-999	32	37	0	69	2	33.60	138	4,643
1,000-3,299	125	27	1	154	2	33.60	307	10,325
3,300-9,999	116	23	3	142	2	33.60	284	9,555
10,000-49,999	366	22	16	404	2	33.60	807	27,123
50,000-99,999	100	5	5	110	2	33.60	220	7,387
100,000-999,999	115	6	5	126	2	33.60	252	8,476
≥ 1 Million	21	1	1	23	2	33.60	46	1,533
National Totals	**1,038**	**277**	**32**	**1,348**			**2,695**	**$ 90,566**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A) - (D) From Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on expert opinion.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.28b State Burden and Cost for Reviewing Disinfection Benchmark Reports Based on ICRSSM Occurrence Distribution, Alternative A3

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Ozone	Total Number of Plants Changing Disinfection	Labor Hours per Plant	Labor Rate	Total Labor Hours	Total Costs
	A	B	C	D = A + B + C	E	F	G = D*E	H = F*G
<100	47	84	-	131	2	$ 33.60	263	$ 8,838
100-499	46	65	-	110	2	33.60	221	7,412
500-999	19	35	0	55	2	33.60	109	3,671
1,000-3,299	61	24	1	86	2	33.60	173	5,802
3,300-9,999	56	21	3	80	2	33.60	160	5,391
10,000-49,999	286	18	12	317	2	33.60	633	21,277
50,000-99,999	78	4	4	86	2	33.60	173	5,802
100,000-999,999	89	5	4	98	2	33.60	197	6,605
≥ 1 Million	17	1	1	18	2	33.60	36	1,214
National Totals	**700**	**257**	**25**	**982**			**1,964**	**$ 66,012**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A) - (D) From Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on expert opinion.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.28c State Burden and Cost for Reviewing Disinfection Benchmark Reports Based on ICRSSL Occurrence Distribution, Alternative A3

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Ozone	Total Number of Plants Changing Disinfection	Labor Hours per Plant	Labor Rate	Total Labor Hours	Total Costs
	A	B	C	D = A + B + C	E	F	G = D*E	H = F*G
<100	37	83	-	120	2	$ 33.60	239	$ 8,040
100-499	36	64	-	100	2	33.60	199	6,696
500-999	15	35	0	50	2	33.60	101	3,393
1,000-3,299	44	23	1	68	2	33.60	137	4,599
3,300-9,999	40	21	3	64	2	33.60	127	4,283
10,000-49,999	237	17	10	264	2	33.60	529	17,771
50,000-99,999	65	4	3	72	2	33.60	144	4,853
100,000-999,999	74	5	3	82	2	33.60	164	5,500
≥ 1 Million	14	1	0	15	2	33.60	31	1,026
National Totals	**562**	**252**	**21**	**836**			**1,671**	**$ 56,161**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A) - (D) From Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on expert opinion.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.29a State Burden and Cost for Reviewing Disinfection Benchmark Reports Based on ICR Occurrence Distribution, Alternative A4

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Ozone	Total Number of Plants Changing Disinfection	Labor Hours per Plant	Labor Rate	Total Labor Hours	Total Costs
	A	B	C	D = A + B + C	E	F	G = D*E	H = F*G
<100	36	83	-	118	2	$ 33.60	237	$ 7,958
100-499	35	64	-	99	2	33.60	197	6,623
500-999	15	35	0	50	2	33.60	100	3,361
1,000-3,299	38	22	1	62	2	33.60	123	4,138
3,300-9,999	35	20	2	57	2	33.60	115	3,859
10,000-49,999	174	16	5	196	2	33.60	391	13,154
50,000-99,999	48	4	1	54	2	33.60	107	3,603
100,000-999,999	53	5	2	59	2	33.60	118	3,980
≥ 1 Million	10	1	0	11	2	33.60	23	767
National Totals	**445**	**250**	**11**	**706**			**1,412**	**$ 47,443**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A) - (D) From Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on expert opinion.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.29b State Burden and Cost for Reviewing Disinfection Benchmark Reports Based on ICRSSM Occurrence Distribution, Alternative A4

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Ozone	Total Number of Plants Changing Disinfection	Labor Hours per Plant	Labor Rate	Total Labor Hours	Total Costs
	A	B	C	D = A + B + C	E	F	G = D*E	H = F*G
<100	24	81	-	105	2	$ 33.60	210	$ 7,058
100-499	24	62	-	87	2	33.60	173	5,815
500-999	11	34	0	45	2	33.60	91	3,047
1,000-3,299	30	22	1	53	2	33.60	106	3,551
3,300-9,999	28	20	1	49	2	33.60	99	3,318
10,000-49,999	106	16	3	124	2	33.60	249	8,356
50,000-99,999	30	4	1	34	2	33.60	69	2,306
100,000-999,999	32	5	1	37	2	33.60	74	2,491
≥ 1 Million	7	1	0	8	2	33.60	15	513
National Totals	**289**	**246**	**7**	**542**			**1,085**	**$ 36,456**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A) - (D) From Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on expert opinion.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.29c State Burden and Cost for Reviewing Disinfection Benchmark Reports Based on ICRSSL Occurrence Distribution, Alternative A4

System Size (Population Served)	Number of Plants Installing UV	Number of Plants Installing MF/UF	Number of Plants Installing Ozone	Total Number of Plants Changing Disinfection	Labor Hours per Plant	Labor Rate	Total Labor Hours	Total Costs
	A	B	C	D = A + B + C	E	F	G = D*E	H = F*G
<100	17	81	-	98	2	$ 33.60	196	$ 6,588
100-499	19	62	-	80	2	$ 33.60	160	$ 5,393
500-999	9	34	0	43	2	$ 33.60	86	$ 2,883
1,000-3,299	25	22	1	48	2	$ 33.60	97	$ 3,251
3,300-9,999	24	20	1	45	2	$ 33.60	91	$ 3,043
10,000-49,999	76	16	2	94	2	$ 33.60	188	$ 6,319
50,000-99,999	22	4	1	26	2	$ 33.60	52	$ 1,755
100,000-999,999	23	5	1	28	2	$ 33.60	56	$ 1,868
≥ 1 Million	5	1	0	6	2	$ 33.60	12	$ 407
National Totals	**219**	**244**	**6**	**469**			**938**	**$ 31,508**

Notes:
Detail may not add exactly to totals due to independent rounding.
UV stands for ultraviolet disinfection and MF/UF stands for microfiltration/ultrafiltration.
Sources:
(A) - (D) From Appendix G of the Economic Analysis for the LT2ESWTR.
(F) Based on expert opinion.
(G) Based on information gathered during the development of the State Workload Model.

Exhibit D.30a Burden and Cost to Plants Associated with *E. coli* Monitoring for Bin Reclassification for All Systems, by System Size
Based on ICR Occurrence Distribution, Alternative A2

System Size (Population Served)	Baseline # of Plants Conducting *E. coli* Monitoring	Sampling				Sample Analysis							Total Cost	Total Burden (Hours)
		# of *E. coli* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Commercial Analysis Cost per Sample (Includes Shipping)	Utility Analysis Hours per Sample (Labor)	Utility Analysis Cost per Sample (O&M)	Utility Analysis Cost per Sample	Percent Utilities with *E. coli* Analysis Capabilities	Total Laboratory Analysis Cost (Labor)	Total Laboratory Analysis Cost (O&M)		
	A	B	C	D	E = A*B*C*D	F	G	H	I = H+G*D	J	K = D*G*J*A*B	L = F*A*B*(1-J)+H*A*B*J	M = E+K+L	N = A*B*C+A*B*G*J
CWSs														
<100	255	26	0.25	$ 21.44	$ 35,529	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 17,765	$ 365,035	$ 418,329	2,486
100-499	582	26	0.25	23.09	87,421	70.00	0.5	9.46	21.00	25%	43,710	830,876	962,007	5,679
500-999	368	26	0.25	24.74	59,233	70.00	0.5	8.63	21.00	25%	29,616	523,448	612,297	3,591
1,000-3,299	816	26	0.25	24.74	131,182	70.00	0.5	8.63	21.00	25%	65,591	1,159,271	1,356,044	7,954
3,300-9,999	804	26	0.25	25.34	132,454	70.00	0.5	8.33	21.00	25%	66,227	1,141,230	1,339,912	7,841
10,000-49,999	708	24	0.25	26.05	110,677	70.00	0.5	7.98	21.00	75%	166,016	399,055	675,748	10,622
50,000-99,999	171	24	0.25	26.05	26,793	70.00	0.5	7.98	21.00	75%	40,190	96,605	163,588	2,571
100,000-999,999	205	24	0.25	31.26	38,366	70.00	0.5	5.37	21.00	100%	76,731	26,362	141,459	3,682
≥ 1 Million	35	24	0.25	31.26	6,561	70.00	0.5	5.37	21.00	100%	13,122	4,508	24,192	630
National Totals	**3,945**				**$ 628,217**						**$ 518,969**	**$ 4,546,390**	**$ 5,693,576**	**45,055**
NTNCWSs														
<100	133	26	0.25	$ 21.44	$ 18,531	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 9,266	$ 190,394	$ 218,190	1,296
100-499	198	26	0.25	23.09	29,758	70.00	0.5	9.46	21.00	25%	14,879	282,826	327,463	1,933
500-999	67	26	0.25	24.74	10,717	70.00	0.5	8.63	21.00	25%	5,358	94,706	110,781	650
1,000-3,299	46	26	0.25	24.74	7,435	70.00	0.5	8.63	21.00	25%	3,718	65,706	76,859	451
3,300-9,999	10	26	0.25	25.34	1,575	70.00	0.5	8.33	21.00	25%	788	13,574	15,937	93
10,000-49,999	1	24	0.25	26.05	101	70.00	0.5	7.98	21.00	75%	151	364	617	10
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**454**				**$ 68,117**						**$ 34,160**	**$ 647,570**	**$ 749,847**	**4,433**
TNCWSs														
<100	727	26	0.25	$ 21.44	$ 101,310	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 50,655	$ 1,040,883	$ 1,192,848	7,088
100-499	467	26	0.25	23.09	70,032	70.00	0.5	9.46	21.00	25%	35,016	665,606	770,654	4,549
500-999	72	26	0.25	24.74	11,647	70.00	0.5	8.63	21.00	25%	5,823	102,924	120,394	706
1,000-3,299	38	26	0.25	24.74	6,144	70.00	0.5	8.63	21.00	25%	3,072	54,294	63,510	373
3,300-9,999	13	26	0.25	25.34	2,060	70.00	0.5	8.33	21.00	25%	1,030	17,748	20,838	122
10,000-49,999	6	24	0.25	26.05	933	70.00	0.5	7.98	21.00	75%	1,399	3,364	5,696	90
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	1	24	0.25	31.26	156	70.00	0.5	5.37	21.00	100%	313	108	577	15
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**1,324**				**$ 192,282**						**$ 97,309**	**$ 1,884,927**	**$ 2,174,517**	**12,943**
Grand Totals	**5,723**				**$ 888,616**						**$ 650,437**	**$ 7,078,887**	**$ 8,617,940**	**62,431**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities," column I.
(B) Bi-weekly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) DynCorp study, Kevin Connell, June 2002.
(G) Based on expert opinion.
(H) The amount left over after the cost of half an hour of labor is subtracted from the cost of utility analysis provided in Column I.
(I) DynCorp study, Kevin Connell, December 2000.
(J) Estimate based on Third Edition Baseline Handbook data.

Exhibit D.30b Burden and Cost to Plants Associated with *E. coli* Monitoring for Bin Reclassification for All Systems, by System Size
Based on ICRSSM Occurrence Distribution, Alternative A2

System Size (Population Served)	Baseline # of Plants Conducting *E. coli* Monitoring	Sampling				Sample Analysis							Total Cost	Total Burden (Hours)
		# of *E. coli* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Commercial Analysis Cost per Sample (Includes Shipping)	Utility Analysis Hours per Sample (Labor)	Utility Analysis Cost per Sample (O&M)	Utility Analysis Cost per Sample	Percent Utilities with *E. coli* Analysis Capabilities	Total Laboratory Analysis Cost (Labor)	Total Laboratory Analysis Cost (O&M)		
	A	B	C	D	E = A*B*C*D	F	G	H	I = H+G*D	J	K = D*G*J*A*B	L = F*A*B*(1-J)+H*A*B*J	M = E+K+L	N = A*B*C+A*B*G*J
CWSs														
<100	267	26	0.25	$ 21.44	$ 37,232	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 18,616	$ 382,529	$ 438,376	2,605
100-499	608	26	0.25	23.09	91,183	70.00	0.5	9.46	21.00	25%	45,591	866,629	1,003,403	5,924
500-999	384	26	0.25	24.74	61,783	70.00	0.5	8.63	21.00	25%	30,892	545,984	638,659	3,746
1,000-3,299	889	26	0.25	24.74	142,949	70.00	0.5	8.63	21.00	25%	71,475	1,263,259	1,477,683	8,667
3,300-9,999	876	26	0.25	25.34	144,248	70.00	0.5	8.33	21.00	25%	72,124	1,242,840	1,459,212	8,539
10,000-49,999	770	24	0.25	26.05	120,392	70.00	0.5	7.98	21.00	75%	180,588	434,081	735,062	11,554
50,000-99,999	186	24	0.25	26.05	29,130	70.00	0.5	7.98	21.00	75%	43,696	105,032	177,858	2,796
100,000-999,999	223	24	0.25	31.26	41,772	70.00	0.5	5.37	21.00	100%	83,544	28,703	154,019	4,009
≥ 1 Million	38	24	0.25	31.26	7,141	70.00	0.5	5.37	21.00	100%	14,283	4,907	26,331	685
National Totals	**4,241**				**$ 675,830**						**$ 560,807**	**$ 4,873,964**	**$ 6,110,602**	**48,524**
NTNCWSs														
<100	139	26	0.25	$ 21.44	$ 19,419	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 9,710	$ 199,518	$ 228,647	1,359
100-499	207	26	0.25	23.09	31,038	70.00	0.5	9.46	21.00	25%	15,519	294,997	341,554	2,016
500-999	70	26	0.25	24.74	11,178	70.00	0.5	8.63	21.00	25%	5,589	98,783	115,551	678
1,000-3,299	50	26	0.25	24.74	8,102	70.00	0.5	8.63	21.00	25%	4,051	71,600	83,753	491
3,300-9,999	10	26	0.25	25.34	1,716	70.00	0.5	8.33	21.00	25%	858	14,783	17,356	102
10,000-49,999	1	24	0.25	26.05	110	70.00	0.5	7.98	21.00	75%	165	396	671	11
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**477**				**$ 71,563**						**$ 35,892**	**$ 680,076**	**$ 787,531**	**4,656**
TNCWSs														
<100	756	26	0.25	$ 21.44	$ 105,368	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 52,684	$ 1,082,581	$ 1,240,634	7,372
100-499	485	26	0.25	23.09	72,837	70.00	0.5	9.46	21.00	25%	36,419	692,270	801,526	4,732
500-999	75	26	0.25	24.74	12,114	70.00	0.5	8.63	21.00	25%	6,057	107,049	125,219	734
1,000-3,299	42	26	0.25	24.74	6,682	70.00	0.5	8.63	21.00	25%	3,341	59,050	69,073	405
3,300-9,999	14	26	0.25	25.34	2,239	70.00	0.5	8.33	21.00	25%	1,119	19,291	22,650	133
10,000-49,999	6	24	0.25	26.05	1,013	70.00	0.5	7.98	21.00	75%	1,520	3,653	6,185	97
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	1	24	0.25	31.26	162	70.00	0.5	5.37	21.00	100%	324	111	597	16
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**1,379**				**$ 200,415**						**$ 101,464**	**$ 1,964,004**	**$ 2,265,883**	**13,488**
Grand Totals	**6,097**				**$ 947,809**						**$ 698,162**	**$ 7,518,045**	**$ 9,164,016**	**66,668**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities," column I.
(B) Bi-weekly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) DynCorp study, Kevin Connell, June 2002.
(G) Based on expert opinion.
(H) The amount left over after the cost of half an hour of labor is subtracted from the cost of utility analysis provided in Column I.
(I) DynCorp study, Kevin Connell, December 2000.
(J) Estimate based on Third Edition Baseline Handbook data.

Exhibit D.30c Burden and Cost to Plants Associated with *E. coli* Monitoring for Bin Reclassification for All Systems, by System Size
Based on ICRSSL Occurrence Distribution, Alternative A2

System Size (Population Served)	Baseline # of Plants Conducting *E. coli* Monitoring	Sampling				Sample Analysis							Total Cost	Total Burden (Hours)
		# of *E. coli* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Commercial Analysis Cost per Sample (Includes Shipping)	Utility Analysis Hours per Sample (Labor)	Utility Analysis Cost per Sample (O&M)	Utility Analysis Cost per Sample	Percent Utilities with *E. coli* Analysis Capabilities	Total Laboratory Analysis Cost (Labor)	Total Laboratory Analysis Cost (O&M)		
	A	B	C	D	E = A*B*C*D	F	G	H	I = H+G*D	J	K = D*G*J*A*B	L = F*A*B*(1-J)+H*A*B*J	M = E+K+L	N = A*B*C+A*B*G*J
CWSs														
<100	270	26	0.25	$ 21.44	$ 37,669	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 18,834	$ 387,016	$ 443,519	2,635
100-499	614	26	0.25	23.09	92,148	70.00	0.5	9.46	21.00	25%	46,074	875,801	1,014,023	5,986
500-999	388	26	0.25	24.74	62,438	70.00	0.5	8.63	21.00	25%	31,219	551,768	645,424	3,786
1,000-3,299	925	26	0.25	24.74	148,776	70.00	0.5	8.63	21.00	25%	74,388	1,314,746	1,537,910	9,020
3,300-9,999	911	26	0.25	25.34	150,065	70.00	0.5	8.33	21.00	25%	75,032	1,292,960	1,518,057	8,883
10,000-49,999	812	24	0.25	26.05	126,865	70.00	0.5	7.98	21.00	75%	190,297	457,419	774,581	12,175
50,000-99,999	196	24	0.25	26.05	30,689	70.00	0.5	7.98	21.00	75%	46,034	110,652	187,375	2,945
100,000-999,999	235	24	0.25	31.26	44,020	70.00	0.5	5.37	21.00	100%	88,040	30,248	162,308	4,225
≥ 1 Million	40	24	0.25	31.26	7,525	70.00	0.5	5.37	21.00	100%	15,050	5,171	27,745	722
National Totals	**4,392**			$ -	**$ 700,193**						**$ 584,968**	**$ 5,025,781**	**$ 6,310,942**	**50,378**
NTNCWSs														
<100	141	26	0.25	$ 21.44	$ 19,647	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 9,824	$ 201,858	$ 231,329	1,375
100-499	209	26	0.25	23.09	31,367	70.00	0.5	9.46	21.00	25%	15,683	298,119	345,169	2,038
500-999	70	26	0.25	24.74	11,297	70.00	0.5	8.63	21.00	25%	5,648	99,830	116,775	685
1,000-3,299	52	26	0.25	24.74	8,432	70.00	0.5	8.63	21.00	25%	4,216	74,518	87,167	511
3,300-9,999	11	26	0.25	25.34	1,785	70.00	0.5	8.33	21.00	25%	892	15,379	18,056	106
10,000-49,999	1	24	0.25	26.05	116	70.00	0.5	7.98	21.00	75%	174	417	707	11
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**484**				**$ 72,643**					0	**$ 36,437**	**$ 690,121**	**$ 799,202**	**4,725**
TNCWSs														
<100	764	26	0.25	$ 21.44	$ 106,409	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 53,205	$ 1,093,278	$ 1,252,892	7,445
100-499	490	26	0.25	23.09	73,557	70.00	0.5	9.46	21.00	25%	36,779	699,110	809,446	4,778
500-999	76	26	0.25	24.74	12,233	70.00	0.5	8.63	21.00	25%	6,117	108,107	126,457	742
1,000-3,299	43	26	0.25	24.74	6,948	70.00	0.5	8.63	21.00	25%	3,474	61,404	71,827	421
3,300-9,999	14	26	0.25	25.34	2,327	70.00	0.5	8.33	21.00	25%	1,164	20,052	23,543	138
10,000-49,999	7	24	0.25	26.05	1,066	70.00	0.5	7.98	21.00	75%	1,600	3,845	6,511	102
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	1	24	0.25	31.26	166	70.00	0.5	5.37	21.00	100%	331	114	610	16
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**1,395**				**$ 202,708**						**$ 102,668**	**$ 1,985,911**	**$ 2,291,287**	**13,642**
Grand Totals	**6,271**				**$ 975,544**						**$ 724,074**	**$ 7,701,813**	**$ 9,401,431**	**68,745**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities," column I.
(B) Bi-weekly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) DynCorp study, Kevin Connell, June 2002.
(G) Based on expert opinion.
(H) The amount left over after the cost of half an hour of labor is subtracted from the cost of utility analysis provided in Column I.
(I) DynCorp study, Kevin Connell, December 2000.
(J) Estimate based on Third Edition Baseline Handbook data.

Exhibit D.31a Burden and Cost to Plants Associated with *E. coli* Monitoring for Bin Reclassification for All Systems, by System Size
Based on ICR Occurrence Distribution, Alternative A3

System Size (Population Served)	Baseline # of Plants Conducting *E. coli* Monitoring	Sampling				Sample Analysis							Total Cost	Total Burden (Hours)
		# of *E. coli* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Commercial Analysis Cost per Sample (Includes Shipping)	Utility Analysis Hours per Sample (Labor)	Utility Analysis Cost per Sample (O&M)	Utility Analysis Cost per Sample	Percent Utilities with *E. coli* Analysis Capabilities	Total Laboratory Analysis Cost (Labor)	Total Laboratory Analysis Cost (O&M)		
	A	B	C	D	E = A*B*C*D	F	G	H	I = H+G*D	J	K = D*G*J*A*B	L = F*A*B*(1-J)+H*A*B*J	M = E+K+L	N = A*B*C+A*B*G*J
CWSs														
<100	265	26	0.25	$ 21.44	$ 36,948	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 18,474	$ 379,611	$ 435,033	2,585
100-499	603	26	0.25	23.09	90,555	70.00	0.5	9.46	21.00	25%	45,278	860,667	996,500	5,883
500-999	382	26	0.25	24.74	61,353	70.00	0.5	8.63	21.00	25%	30,677	542,186	634,217	3,720
1,000-3,299	948	26	0.25	24.74	152,478	70.00	0.5	8.63	21.00	25%	76,239	1,347,468	1,576,185	9,245
3,300-9,999	934	26	0.25	25.34	153,917	70.00	0.5	8.33	21.00	25%	76,958	1,326,152	1,557,027	9,111
10,000-49,999	744	24	0.25	26.05	116,306	70.00	0.5	7.98	21.00	75%	174,459	419,350	710,115	11,162
50,000-99,999	180	24	0.25	26.05	28,136	70.00	0.5	7.98	21.00	75%	42,204	101,447	171,788	2,700
100,000-999,999	215	24	0.25	31.26	40,377	70.00	0.5	5.37	21.00	100%	80,754	27,745	148,875	3,875
≥ 1 Million	37	24	0.25	31.26	6,903	70.00	0.5	5.37	21.00	100%	13,806	4,743	25,452	662
National Totals	**4,309**				**$ 686,974**						**$ 558,849**	**$ 5,009,369**	**$ 6,255,192**	**48,943**
NTNCWSs														
<100	138	26	0.25	$ 21.44	$ 19,271	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 9,636	$ 197,996	$ 226,903	1,348
100-499	205	26	0.25	23.09	30,825	70.00	0.5	9.46	21.00	25%	15,412	292,967	339,204	2,002
500-999	69	26	0.25	24.74	11,101	70.00	0.5	8.63	21.00	25%	5,550	98,096	114,747	673
1,000-3,299	54	26	0.25	24.74	8,642	70.00	0.5	8.63	21.00	25%	4,321	76,373	89,336	524
3,300-9,999	11	26	0.25	25.34	1,831	70.00	0.5	8.33	21.00	25%	915	15,773	18,520	108
10,000-49,999	1	24	0.25	26.05	106	70.00	0.5	7.98	21.00	75%	159	383	648	10
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**478**				**$ 71,775**						**$ 35,994**	**$ 681,589**	**$ 789,358**	**4,666**
TNCWSs														
<100	751	26	0.25	$ 21.44	$ 104,692	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 52,346	$ 1,075,628	$ 1,232,665	7,325
100-499	482	26	0.25	23.09	72,369	70.00	0.5	9.46	21.00	25%	36,185	687,823	796,378	4,701
500-999	75	26	0.25	24.74	12,035	70.00	0.5	8.63	21.00	25%	6,017	106,354	124,406	730
1,000-3,299	44	26	0.25	24.74	7,118	70.00	0.5	8.63	21.00	25%	3,559	62,901	73,577	432
3,300-9,999	14	26	0.25	25.34	2,386	70.00	0.5	8.33	21.00	25%	1,193	20,556	24,135	141
10,000-49,999	6	24	0.25	26.05	979	70.00	0.5	7.98	21.00	75%	1,469	3,531	5,979	94
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	1	24	0.25	31.26	160	70.00	0.5	5.37	21.00	100%	319	110	589	15
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**1,374**				**$ 199,739**						**$ 101,088**	**$ 1,956,902**	**$ 2,257,729**	**13,438**
Grand Totals	**6,161**				**$ 958,488**						**$ 695,931**	**$ 7,647,860**	**$ 9,302,279**	**67,047**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities," column I.
(B) Bi-weekly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) DynCorp study, Kevin Connell, June 2002.
(G) Based on expert opinion.
(H) The amount left over after the cost of half an hour of labor is subtracted from the cost of utility analysis provided in Column I.
(I) DynCorp study, Kevin Connell, December 2000.
(J) Estimate based on Third Edition Baseline Handbook data.

Exhibit D.31b Burden and Cost to Plants Associated with *E. coli* Monitoring for Bin Reclassification for All Systems, by System Size
Based on ICRSSM Occurrence Distribution, Alternative A3

		Sampling				Sample Analysis								
System Size (Population Served)	Baseline # of Plants Conducting *E. coli* Monitoring	# of *E. coli* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Commercial Analysis Cost per Sample (Includes Shipping)	Utility Analysis Hours per Sample (Labor)	Utility Analysis Cost per Sample (O&M)	Utility Analysis Cost per Sample	Percent Utilities with *E. coli* Analysis Capabilities	Total Laboratory Analysis Cost (Labor)	Total Laboratory Analysis Cost (O&M)	Total Cost	Total Burden (Hours)
	A	B	C	D	E = A*B*C*D	F	G	H	I = H+G*D	J	K = D*G*J*A*B	L = F*A*B*(1-J)+H*A*B*J	M = E+K+L	N = A*B*C+A*B*G*J
CWSs														
<100	273	26	0.25	$ 21.44	$ 38,035	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 19,018	$ 390,785	$ 447,839	2,661
100-499	619	26	0.25	23.09	92,958	70.00	0.5	9.46	21.00	25%	46,479	883,505	1,022,942	6,039
500-999	392	26	0.25	24.74	62,981	70.00	0.5	8.63	21.00	25%	31,491	556,573	651,045	3,819
1,000-3,299	1,008	26	0.25	24.74	162,102	70.00	0.5	8.63	21.00	25%	81,051	1,432,512	1,675,665	9,828
3,300-9,999	993	26	0.25	25.34	163,545	70.00	0.5	8.33	21.00	25%	81,772	1,409,103	1,654,420	9,681
10,000-49,999	821	24	0.25	26.05	128,339	70.00	0.5	7.98	21.00	75%	192,508	462,735	783,582	12,317
50,000-99,999	199	24	0.25	26.05	31,036	70.00	0.5	7.98	21.00	75%	46,554	111,903	189,493	2,979
100,000-999,999	237	24	0.25	31.26	44,470	70.00	0.5	5.37	21.00	100%	88,940	30,557	163,968	4,268
≥ 1 Million	41	24	0.25	31.26	7,601	70.00	0.5	5.37	21.00	100%	15,202	5,223	28,027	729
National Totals	**4,582**				**$ 731,068**						**$ 603,016**	**$ 5,282,897**	**$ 6,616,981**	**52,320**
NTNCWSs														
<100	142	26	0.25	$ 21.44	$ 19,838	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 9,919	$ 203,824	$ 233,582	1,388
100-499	211	26	0.25	23.09	31,643	70.00	0.5	9.46	21.00	25%	15,821	300,741	348,205	2,056
500-999	71	26	0.25	24.74	11,395	70.00	0.5	8.63	21.00	25%	5,698	100,699	117,792	691
1,000-3,299	57	26	0.25	24.74	9,188	70.00	0.5	8.63	21.00	25%	4,594	81,193	94,974	557
3,300-9,999	12	26	0.25	25.34	1,945	70.00	0.5	8.33	21.00	25%	973	16,760	19,678	115
10,000-49,999	1	24	0.25	26.05	117	70.00	0.5	7.98	21.00	75%	176	422	715	11
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**494**				**$ 74,126**						**$ 37,180**	**$ 703,640**	**$ 814,946**	**4,818**
TNCWSs														
<100	770	26	0.25	$ 21.44	$ 107,284	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 53,642	$ 1,102,263	$ 1,263,189	7,506
100-499	494	26	0.25	23.09	74,162	70.00	0.5	9.46	21.00	25%	37,081	704,856	816,098	4,818
500-999	77	26	0.25	24.74	12,333	70.00	0.5	8.63	21.00	25%	6,166	108,987	127,486	748
1,000-3,299	47	26	0.25	24.74	7,558	70.00	0.5	8.63	21.00	25%	3,779	66,790	78,126	458
3,300-9,999	15	26	0.25	25.34	2,532	70.00	0.5	8.33	21.00	25%	1,266	21,816	25,614	150
10,000-49,999	7	24	0.25	26.05	1,079	70.00	0.5	7.98	21.00	75%	1,618	3,889	6,585	104
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	1	24	0.25	31.26	166	70.00	0.5	5.37	21.00	100%	333	114	613	16
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**1,411**				**$ 205,113**						**$ 103,884**	**$ 2,008,714**	**$ 2,317,711**	**13,799**
Grand Totals	**6,487**				**$ 1,010,307**						**$ 744,081**	**$ 7,995,251**	**$ 9,749,639**	**70,937**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities," column I.
(B) Bi-weekly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) DynCorp study, Kevin Connell, June 2002.
(G) Based on expert opinion.
(H) The amount left over after the cost of half an hour of labor is subtracted from the cost of utility analysis provided in Column I.
(I) DynCorp study, Kevin Connell, December 2000.
(J) Estimate based on Third Edition Baseline Handbook data.

Exhibit D.31c Burden and Cost to Plants Associated with *E. coli* Monitoring for Bin Reclassification for All Systems, by System Size
Based on ICRSSL Occurrence Distribution, Alternative A3

System Size (Population Served)	Baseline # of Plants Conducting *E. coli* Monitoring	Sampling				Sample Analysis							Total Cost	Total Burden (Hours)
		# of *E. coli* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Commercial Analysis Cost per Sample (Includes Shipping)	Utility Analysis Hours per Sample (Labor)	Utility Analysis Cost per Sample (O&M)	Utility Analysis Cost per Sample	Percent Utilities with *E. coli* Analysis Capabilities	Total Laboratory Analysis Cost (Labor)	Total Laboratory Analysis Cost (O&M)		
	A	B	C	D	E = A*B*C*D	F	G	H	I = H+G*D	J	K = D*G*J*A*B	L = F*A*B*(1-J)+H*A*B*J	M = E+K+L	N = A*B*C+A*B*G*J
CWSs														
<100	275	26	0.25	$ 21.44	$ 38,348	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 19,174	$ 393,992	$ 451,513	2,683
100-499	624	26	0.25	23.09	93,648	70.00	0.5	9.46	21.00	25%	46,824	890,059	1,030,531	6,084
500-999	395	26	0.25	24.74	63,449	70.00	0.5	8.63	21.00	25%	31,724	560,702	655,875	3,847
1,000-3,299	1,024	26	0.25	24.74	164,662	70.00	0.5	8.63	21.00	25%	82,331	1,455,132	1,702,125	9,984
3,300-9,999	1,008	26	0.25	25.34	166,074	70.00	0.5	8.33	21.00	25%	83,037	1,430,897	1,680,008	9,831
10,000-49,999	867	24	0.25	26.05	135,572	70.00	0.5	7.98	21.00	75%	203,358	488,815	827,745	13,011
50,000-99,999	210	24	0.25	26.05	32,782	70.00	0.5	7.98	21.00	75%	49,173	118,198	200,153	3,146
100,000-999,999	250	24	0.25	31.26	46,903	70.00	0.5	5.37	21.00	100%	93,806	32,229	172,937	4,501
≥ 1 Million	43	24	0.25	31.26	8,017	70.00	0.5	5.37	21.00	100%	16,033	5,509	29,558	769
National Totals	**4,696**				**$ 749,453**						**$ 625,460**	**$ 5,375,532**	**$ 6,750,445**	**53,855**
NTNCWSs														
<100	144	26	0.25	$ 21.44	$ 20,001	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 10,001	$ 205,497	$ 235,499	1,399
100-499	212	26	0.25	23.09	31,877	70.00	0.5	9.46	21.00	25%	15,939	302,972	350,788	2,071
500-999	71	26	0.25	24.74	11,480	70.00	0.5	8.63	21.00	25%	5,740	101,446	118,666	696
1,000-3,299	58	26	0.25	24.74	9,333	70.00	0.5	8.63	21.00	25%	4,666	82,475	96,474	566
3,300-9,999	12	26	0.25	25.34	1,975	70.00	0.5	8.33	21.00	25%	988	17,019	19,982	117
10,000-49,999	1	24	0.25	26.05	124	70.00	0.5	7.98	21.00	75%	186	446	755	12
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**498**				**$ 74,790**						**$ 37,519**	**$ 709,856**	**$ 822,164**	**4,861**
TNCWSs														
<100	775	26	0.25	$ 21.44	$ 108,028	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 54,014	$ 1,109,906	$ 1,271,948	7,558
100-499	498	26	0.25	23.09	74,676	70.00	0.5	9.46	21.00	25%	37,338	709,743	821,757	4,851
500-999	77	26	0.25	24.74	12,418	70.00	0.5	8.63	21.00	25%	6,209	109,743	128,370	753
1,000-3,299	48	26	0.25	24.74	7,675	70.00	0.5	8.63	21.00	25%	3,837	67,824	79,336	465
3,300-9,999	16	26	0.25	25.34	2,570	70.00	0.5	8.33	21.00	25%	1,285	22,147	26,003	152
10,000-49,999	7	24	0.25	26.05	1,138	70.00	0.5	7.98	21.00	75%	1,707	4,104	6,949	109
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	1	24	0.25	31.26	170	70.00	0.5	5.37	21.00	100%	340	117	627	16
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**1,421**				**$ 206,676**						**$ 104,731**	**$ 2,023,584**	**$ 2,334,991**	**13,905**
Grand Totals	**6,615**				**$ 1,030,919**						**$ 767,710**	**$ 8,108,971**	**$ 9,907,600**	**72,621**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities," column I.
(B) Bi-weekly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) DynCorp study, Kevin Connell, June 2002.
(G) Based on expert opinion.
(H) The amount left over after the cost of half an hour of labor is subtracted from the cost of utility analysis provided in Column I.
(I) DynCorp study, Kevin Connell, December 2000.
(J) Estimate based on Third Edition Baseline Handbook data.

Exhibit D.32a Burden and Cost to Plants Associated with *E. coli* Monitoring for Bin Reclassification for All Systems, by System Size
Based on ICR Occurrence Distribution, Alternative A4

		Sampling				Sample Analysis								
System Size (Population Served)	Baseline # of Plants Conducting *E. coli* Monitoring	# of *E. coli* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Commercial Analysis Cost per Sample (Includes Shipping)	Utility Analysis Hours per Sample (Labor)	Utility Analysis Cost per Sample (O&M)	Utility Analysis Cost per Sample	Percent Utilities with *E. coli* Analysis Capabilities	Total Laboratory Analysis Cost (Labor)	Total Laboratory Analysis Cost (O&M)	Total Cost	Total Burden (Hours)
	A	B	C	D	E = A*B*C*D	F	G	H	I = H+G*D	J	K = D*G*J*A*B	L = F*A*B*(1-J)+H*A*B*J	M = E+K+L	N = A*B*C+A*B*G*J
CWSs														
<100	275	26	0.25	$ 21.44	$ 38,380	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 19,190	$ 394,322	$ 451,892	2,685
100-499	624	26	0.25	23.09	93,719	70.00	0.5	9.46	21.00	25%	46,859	890,734	1,031,312	6,088
500-999	395	26	0.25	24.74	63,501	70.00	0.5	8.63	21.00	25%	31,751	561,165	656,417	3,850
1,000-3,299	1,030	26	0.25	24.74	165,642	70.00	0.5	8.63	21.00	25%	82,821	1,463,800	1,712,264	10,043
3,300-9,999	1,014	26	0.25	25.34	166,934	70.00	0.5	8.33	21.00	25%	83,467	1,438,309	1,688,711	9,882
10,000-49,999	926	24	0.25	26.05	144,747	70.00	0.5	7.98	21.00	75%	217,120	521,894	883,761	13,891
50,000-99,999	224	24	0.25	26.05	34,996	70.00	0.5	7.98	21.00	75%	52,494	126,181	213,671	3,359
100,000-999,999	267	24	0.25	31.26	50,144	70.00	0.5	5.37	21.00	100%	100,289	34,456	184,889	4,812
≥ 1 Million	46	24	0.25	31.26	8,570	70.00	0.5	5.37	21.00	100%	17,141	5,889	31,600	822
National Totals	**4,801**				**$ 766,634**						**$ 651,132**	**$ 5,436,751**	**$ 6,854,517**	**55,433**
NTNCWSs														
<100	144	26	0.25	$ 21.44	$ 20,018	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 10,009	$ 205,669	$ 235,696	1,401
100-499	213	26	0.25	23.09	31,901	70.00	0.5	9.46	21.00	25%	15,951	303,202	351,054	2,072
500-999	71	26	0.25	24.74	11,489	70.00	0.5	8.63	21.00	25%	5,745	101,530	118,764	697
1,000-3,299	58	26	0.25	24.74	9,388	70.00	0.5	8.63	21.00	25%	4,694	82,966	97,049	569
3,300-9,999	12	26	0.25	25.34	1,986	70.00	0.5	8.33	21.00	25%	993	17,107	20,086	118
10,000-49,999	1	24	0.25	26.05	132	70.00	0.5	7.98	21.00	75%	198	476	806	13
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**499**				**$ 74,914**						**$ 37,589**	**$ 710,951**	**$ 823,455**	**4,869**
TNCWSs														
<100	776	26	0.25	$ 21.44	$ 108,105	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 54,052	$ 1,110,693	$ 1,272,850	7,563
100-499	498	26	0.25	23.09	74,729	70.00	0.5	9.46	21.00	25%	37,364	710,247	822,340	4,855
500-999	77	26	0.25	24.74	12,428	70.00	0.5	8.63	21.00	25%	6,214	109,828	128,470	754
1,000-3,299	48	26	0.25	24.74	7,720	70.00	0.5	8.63	21.00	25%	3,860	68,220	79,800	468
3,300-9,999	16	26	0.25	25.34	2,583	70.00	0.5	8.33	21.00	25%	1,292	22,259	26,135	153
10,000-49,999	8	24	0.25	26.05	1,214	70.00	0.5	7.98	21.00	75%	1,821	4,376	7,411	116
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	1	24	0.25	31.26	175	70.00	0.5	5.37	21.00	100%	351	120	646	17
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**1,423**				**$ 206,954**						**$ 104,954**	**$ 2,025,744**	**$ 2,337,652**	**13,926**
Grand Totals	**6,724**				**$ 1,048,502**						**$ 793,675**	**$ 8,173,447**	**$ 10,015,623**	**74,227**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities," column I.
(B) Bi-weekly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) DynCorp study, Kevin Connell, June 2002.
(G) Based on expert opinion.
(H) The amount left over after the cost of half an hour of labor is subtracted from the cost of utility analysis provided in Column I.
(I) DynCorp study, Kevin Connell, December 2000.
(J) Estimate based on Third Edition Baseline Handbook data.

Exhibit D.32b Burden and Cost to Plants Associated with *E. coli* Monitoring for Bin Reclassification for All Systems, by System Size
Based on ICRSSM Occurrence Distribution, Alternative A4

System Size (Population Served)	Baseline # of Plants Conducting *E. coli* Monitoring	Sampling				Sample Analysis							Total Cost	Total Burden (Hours)
		# of *E. coli* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Commercial Analysis Cost per Sample (Includes Shipping)	Utility Analysis Hours per Sample (Labor)	Utility Analysis Cost per Sample (O&M)	Utility Analysis Cost per Sample	Percent Utilities with *E. coli* Analysis Capabilities	Total Laboratory Analysis Cost (Labor)	Total Laboratory Analysis Cost (O&M)		
	A	B	C	D	E = A*B*C*D	F	G	H	I = H+G*D	J	K = D*G*J*A*B	L = F*A*B*(1-J)+H*A*B*J	M = E+K+L	N = A*B*C+A*B*G*J
CWSs														
<100	278	26	0.25	$ 21.44	$ 38,732	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 19,366	$ 397,941	$ 456,038	2,710
100-499	630	26	0.25	23.09	94,497	70.00	0.5	9.46	21.00	25%	47,248	898,129	1,039,874	6,139
500-999	398	26	0.25	24.74	64,028	70.00	0.5	8.63	21.00	25%	32,014	565,818	661,860	3,882
1,000-3,299	1,038	26	0.25	24.74	166,891	70.00	0.5	8.63	21.00	25%	83,446	1,474,834	1,725,171	10,119
3,300-9,999	1,021	26	0.25	25.34	168,128	70.00	0.5	8.33	21.00	25%	84,064	1,448,595	1,700,787	9,952
10,000-49,999	990	24	0.25	26.05	154,730	70.00	0.5	7.98	21.00	75%	232,095	557,889	944,713	14,849
50,000-99,999	239	24	0.25	26.05	37,408	70.00	0.5	7.98	21.00	75%	56,112	134,877	228,397	3,590
100,000-999,999	285	24	0.25	31.26	53,458	70.00	0.5	5.37	21.00	100%	106,915	36,733	197,106	5,130
≥ 1 Million	49	24	0.25	31.26	9,137	70.00	0.5	5.37	21.00	100%	18,273	6,278	33,688	877
National Totals	**4,927**				**$ 787,008**						**$ 679,533**	**$ 5,521,094**	**$ 6,987,635**	**57,248**
NTNCWSs														
<100	145	26	0.25	$ 21.44	$ 20,202	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 10,101	$ 207,556	$ 237,859	1,413
100-499	214	26	0.25	23.09	32,166	70.00	0.5	9.46	21.00	25%	16,083	305,719	353,969	2,090
500-999	72	26	0.25	24.74	11,584	70.00	0.5	8.63	21.00	25%	5,792	102,372	119,749	702
1,000-3,299	59	26	0.25	24.74	9,459	70.00	0.5	8.63	21.00	25%	4,730	83,592	97,780	574
3,300-9,999	12	26	0.25	25.34	2,000	70.00	0.5	8.33	21.00	25%	1,000	17,230	20,229	118
10,000-49,999	1	24	0.25	26.05	141	70.00	0.5	7.98	21.00	75%	212	509	862	14
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**503**				**$ 75,552**						**$ 37,917**	**$ 716,978**	**$ 830,448**	**4,911**
TNCWSs														
<100	782	26	0.25	$ 21.44	$ 108,944	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 54,472	$ 1,119,318	$ 1,282,734	7,622
100-499	502	26	0.25	23.09	75,309	70.00	0.5	9.46	21.00	25%	37,655	715,762	828,725	4,892
500-999	78	26	0.25	24.74	12,524	70.00	0.5	8.63	21.00	25%	6,262	110,679	129,466	759
1,000-3,299	48	26	0.25	24.74	7,777	70.00	0.5	8.63	21.00	25%	3,888	68,725	80,390	472
3,300-9,999	16	26	0.25	25.34	2,602	70.00	0.5	8.33	21.00	25%	1,301	22,416	26,318	154
10,000-49,999	8	24	0.25	26.05	1,296	70.00	0.5	7.98	21.00	75%	1,944	4,673	7,913	124
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	1	24	0.25	31.26	181	70.00	0.5	5.37	21.00	100%	361	124	666	17
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**1,435**				**$ 208,633**						**$ 105,883**	**$ 2,041,697**	**$ 2,356,213**	**14,041**
Grand Totals	**6,865**				**$ 1,071,193**						**$ 823,334**	**$ 8,279,770**	**$ 10,174,296**	**76,200**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities," column I.
(B) Bi-weekly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) DynCorp study, Kevin Connell, June 2002.
(G) Based on expert opinion.
(H) The amount left over after the cost of half an hour of labor is subtracted from the cost of utility analysis provided in Column I.
(I) DynCorp study, Kevin Connell, December 2000.
(J) Estimate based on Third Edition Baseline Handbook data.

Exhibit D.32c Burden and Cost to Plants Associated with *E. coli* Monitoring for Bin Reclassification for All Systems, by System Size
Based on ICRSSL Occurrence Distribution, Alternative A4

System Size (Population Served)	Baseline # of Plants Conducting *E. coli* Monitoring	Sampling				Sample Analysis							Total Cost	Total Burden (Hours)
		# of *E. coli* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Commercial Analysis Cost per Sample (Includes Shipping)	Utility Analysis Hours per Sample (Labor)	Utility Analysis Cost per Sample (O&M)	Utility Analysis Cost per Sample	Percent Utilities with *E. coli* Analysis Capabilities	Total Laboratory Analysis Cost (Labor)	Total Laboratory Analysis Cost (O&M)		
	A	B	C	D	E = A*B*C*D	F	G	H	I = H+G*D	J	K = D*G*J*A*B	L = F*A*B*(1-J)+H*A*B*J	M = E+K+L	N = A*B*C+A*B*G*J
CWSs														
<100	279	26	0.25	$ 21.44	$ 38,916	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 19,458	$ 399,831	$ 458,205	2,723
100-499	632	26	0.25	23.09	94,903	70.00	0.5	9.46	21.00	25%	47,452	901,993	1,044,348	6,165
500-999	400	26	0.25	24.74	64,302	70.00	0.5	8.63	21.00	25%	32,151	568,245	664,699	3,899
1,000-3,299	1,042	26	0.25	24.74	167,528	70.00	0.5	8.63	21.00	25%	83,764	1,480,467	1,731,760	10,157
3,300-9,999	1,025	26	0.25	25.34	168,750	70.00	0.5	8.33	21.00	25%	84,375	1,453,955	1,707,081	9,989
10,000-49,999	1,017	24	0.25	26.05	159,013	70.00	0.5	7.98	21.00	75%	238,519	573,332	970,864	15,260
50,000-99,999	246	24	0.25	26.05	38,443	70.00	0.5	7.98	21.00	75%	57,665	138,609	234,717	3,689
100,000-999,999	292	24	0.25	31.26	54,859	70.00	0.5	5.37	21.00	100%	109,718	37,696	202,272	5,265
≥ 1 Million	50	24	0.25	31.26	9,376	70.00	0.5	5.37	21.00	100%	18,752	6,443	34,571	900
National Totals	**4,984**				**$ 796,091**						**$ 691,854**	**$ 5,560,571**	**$ 7,048,517**	**58,047**
NTNCWSs														
<100	146	26	0.25	$ 21.44	$ 20,298	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 10,149	$ 208,542	$ 238,989	1,420
100-499	215	26	0.25	23.09	32,305	70.00	0.5	9.46	21.00	25%	16,152	307,034	355,491	2,099
500-999	72	26	0.25	24.74	11,634	70.00	0.5	8.63	21.00	25%	5,817	102,811	120,262	705
1,000-3,299	59	26	0.25	24.74	9,495	70.00	0.5	8.63	21.00	25%	4,748	83,911	98,154	576
3,300-9,999	12	26	0.25	25.34	2,007	70.00	0.5	8.33	21.00	25%	1,004	17,294	20,304	119
10,000-49,999	1	24	0.25	26.05	145	70.00	0.5	7.98	21.00	75%	218	523	886	14
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**505**				**$ 75,884**						**$ 38,087**	**$ 720,116**	**$ 834,087**	**4,933**
TNCWSs														
<100	785	26	0.25	$ 21.44	$ 109,383	$ 70.00	0.5	$ 10.28	$ 21.00	25%	$ 54,691	$ 1,123,825	$ 1,287,898	7,653
100-499	504	26	0.25	23.09	75,612	70.00	0.5	9.46	21.00	25%	37,806	718,644	832,062	4,912
500-999	78	26	0.25	24.74	12,575	70.00	0.5	8.63	21.00	25%	6,287	111,124	129,986	762
1,000-3,299	49	26	0.25	24.74	7,806	70.00	0.5	8.63	21.00	25%	3,903	68,983	80,692	473
3,300-9,999	16	26	0.25	25.34	2,611	70.00	0.5	8.33	21.00	25%	1,306	22,497	26,414	155
10,000-49,999	9	24	0.25	26.05	1,331	70.00	0.5	7.98	21.00	75%	1,997	4,800	8,129	128
50,000-99,999	-	24	0.25	26.05	-	70.00	0.5	7.98	21.00	75%	-	-	-	-
100,000-999,999	1	24	0.25	31.26	183	70.00	0.5	5.37	21.00	100%	366	126	674	18
≥ 1 Million	-	24	0.25	31.26	-	70.00	0.5	5.37	21.00	100%	-	-	-	-
National Totals	**1,441**				**$ 209,501**						**$ 106,356**	**$ 2,049,997**	**$ 2,365,854**	**14,100**
Grand Totals	**6,930**				**$ 1,081,476**						**$ 836,297**	**$ 8,330,684**	**$ 10,248,457**	**77,080**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities," column I.
(B) Bi-weekly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) DynCorp study, Kevin Connell, June 2002.
(G) Based on expert opinion.
(H) The amount left over after the cost of half an hour of labor is subtracted from the cost of utility analysis provided in Column I.
(I) DynCorp study, Kevin Connell, December 2000.
(J) Estimate based on Third Edition Baseline Handbook data.

Exhibit D.33a Burden and Cost to Plants Associated with *Cryptosporidium* Monitoring for Bin Reclassification for All System Types, by System Size Based on ICR Occurrence Distribution, Alternative A2

System Size (Population Served)	Baseline # of Plants Conducting *Crypto-sporidium* Monitoring	Sampling				Sample Analysis		Total Cost	Total Burden (Hours)	Total Burden (FTEs)	Responses
		# of *Crypto-sporidium* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Cost per Sample	Total Laboratory Analysis Cost (O&M)				
	A	B	C	D	E = A*B*C*D	F	G = A*B*F	H = E+G	I = A*B*C	J = I/2080	K = A*B
CWSs											
<100	255	26	0.5	$ 21.44	$ 71,058	$529.50	$ 3,509,827	$ 3,580,886	3,314	1.6	6,629
100-499	582	26	0.5	23.09	174,841	529.50	8,018,931	8,193,773	7,572	3.6	15,144
500-999	368	26	0.5	24.74	118,466	529.50	5,070,954	5,189,420	4,788	2.3	9,577
1,000-3,299	816	26	0.5	24.74	262,364	529.50	11,230,551	11,492,915	10,605	5.1	21,210
3,300-9,999	804	26	0.5	25.34	264,909	529.50	11,070,972	11,335,881	10,454	5.0	20,908
10,000-49,999	708	26	0.5	26.05	239,801	529.50	9,748,537	9,988,339	9,205	4.4	18,411
50,000-99,999	171	26	0.5	26.05	58,052	529.50	2,359,967	2,418,019	2,228	1.1	4,457
100,000-999,999	205	26	0.5	31.26	83,125	529.50	2,816,048	2,899,173	2,659	1.3	5,318
≥ 1 Million	35	26	0.5	31.26	14,216	529.50	481,598	495,814	455	0.2	910
National Totals	**3,945**				**$ 1,286,833**	$ -	**$ 54,307,386**	**$55,594,219**	**51,282**	**24.7**	**102,564**
NTNCWSs											
<100	133	26	0.5	$ 21.44	$ 37,062	$529.50	$ 1,830,643	$ 1,867,705	1,729	0.8	3,457
100-499	198	26	0.5	23.09	59,515	529.50	2,729,608	2,789,123	2,578	1.2	5,155
500-999	67	26	0.5	24.74	21,434	529.50	917,474	938,908	866	0.4	1,733
1,000-3,299	46	26	0.5	24.74	14,870	529.50	636,533	651,403	601	0.3	1,202
3,300-9,999	10	26	0.5	25.34	3,151	529.50	131,680	134,831	124	0.1	249
10,000-49,999	1	26	0.5	26.05	219	529.50	8,896	9,115	8	0.0	17
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	-	26	0.5	31.26	-	529.50	-	-	-	-	-
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**454**				**$ 136,251**	$ -	**$ 6,254,834**	**$ 6,391,085**	**5,906**	**2.8**	**11,813**
TNCWSs											
<100	727	26	0.5	$ 21.44	$ 202,620	$529.50	$ 10,008,131	$10,210,751	9,451	4.5	18,901
100-499	467	26	0.5	23.09	140,064	529.50	6,423,883	6,563,946	6,066	2.9	12,132
500-999	72	26	0.5	24.74	23,293	529.50	997,082	1,020,375	942	0.5	1,883
1,000-3,299	38	26	0.5	24.74	12,288	529.50	525,982	538,270	497	0.2	993
3,300-9,999	13	26	0.5	25.34	4,120	529.50	172,173	176,293	163	0.1	325
10,000-49,999	6	26	0.5	26.05	2,021	529.50	82,174	84,195	78	0.0	155
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	1	26	0.5	31.26	339	529.50	11,487	11,826	11	0.0	22
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**1,324**				**$ 384,745**	$ -	**$ 18,220,911**	**$18,605,656**	**17,206**	**8.3**	**34,412**
Grand Totals	**5,723**				**$ 1,807,830**		**$ 78,783,131**	**$80,590,961**	**74,394**	**35.8**	**148,788**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities," column J.

(B) Semimonthly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems, plus two matrix spike samples.

(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) Cost per sample includes $403 in lab costs, $88.70 for shipping, and $37.80 in additional costs. Assumes all plants ship samples to private lab for *Cryptosporidium* analysis. Samples must be shipped overnight to meet 24-hour holding time requirements. Costs based on FedEx priority overnight rates for 10 L sample (22 LB) shipped in a 34-quart polyethylene cooler packed with wet ice, median cost for all zones. Samples generating a pellet volume of >0.5 ml require multiple subsample processing at a cost of $140 each. During the ICR Supplemental Survey, approximately 27 percent of field samples required analysis of multiple subsamples, resulting in an additional per-plant charge of $38 ($140 x 0.27).

Exhibit D.33b Burden and Cost to Plants Associated with *Cryptosporidium* Monitoring for Bin Reclassification for All System Types, by System Size Based on ICRSSM Occurrence Distribution, Alternative A2

System Size (Population Served)	Baseline # of Plants Conducting *Crypto-sporidium* Monitoring	Sampling				Sample Analysis		Total Cost	Total Burden (Hours)	Total Burden (FTEs)	Responses
		# of *Crypto-sporidium* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Cost per Sample	Total Laboratory Analysis Cost (O&M)				
	A	B	C	D	E = A*B*C*D	F	G = A*B*F	H = E+G	I = A*B*C	J = I/2080	K = A*B
CWSs											
<100	267	26	0.5	$ 21.44	$ 74,464	$ 529.50	$ 3,678,025	$ 3,752,489	3,473	1.7	6,946
100-499	608	26	0.5	23.09	182,365	529.50	8,363,995	8,546,360	7,898	3.8	15,796
500-999	384	26	0.5	24.74	123,566	529.50	5,289,275	5,412,841	4,995	2.4	9,989
1,000-3,299	889	26	0.5	24.74	285,899	529.50	12,237,943	12,523,842	11,556	5.6	23,112
3,300-9,999	876	26	0.5	25.34	288,495	529.50	12,056,685	12,345,180	11,385	5.5	22,770
10,000-49,999	770	26	0.5	26.05	260,849	529.50	10,604,204	10,865,053	10,013	4.8	20,027
50,000-99,999	186	26	0.5	26.05	63,116	529.50	2,565,826	2,628,942	2,423	1.2	4,846
100,000-999,999	223	26	0.5	31.26	90,506	529.50	3,066,079	3,156,585	2,895	1.4	5,791
≥ 1 Million	38	26	0.5	31.26	15,473	529.50	524,179	539,652	495	0.2	990
National Totals	**4,241**				**$ 1,384,733**		**$ 58,386,212**	**$ 59,770,945**	**55,133**	**26.5**	**110,267**
NTNCWSs											
<100	139	26	0.5	$ 21.44	$ 38,838	$ 529.50	$ 1,918,371	$ 1,957,209	1,811	0.9	3,623
100-499	207	26	0.5	23.09	62,076	529.50	2,847,066	2,909,142	2,688	1.3	5,377
500-999	70	26	0.5	24.74	22,357	529.50	956,975	979,331	904	0.4	1,807
1,000-3,299	50	26	0.5	24.74	16,204	529.50	693,630	709,835	655	0.3	1,310
3,300-9,999	10	26	0.5	25.34	3,431	529.50	143,404	146,836	135	0.1	271
10,000-49,999	1	26	0.5	26.05	238	529.50	9,677	9,915	9	0.0	18
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	-	26	0.5	31.26	-	529.50	-	-	-	-	-
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**477**				**$ 143,145**		**$ 6,569,123**	**$ 6,712,268**	**6,203**	**3.0**	**12,406**
TNCWSs											
<100	756	26	0.5	$ 21.44	$ 210,737	$ 529.50	$ 10,409,056	$ 10,619,792	9,829	4.7	19,658
100-499	485	26	0.5	23.09	145,675	529.50	6,681,222	6,826,897	6,309	3.0	12,618
500-999	75	26	0.5	24.74	24,227	529.50	1,037,046	1,061,273	979	0.5	1,959
1,000-3,299	42	26	0.5	24.74	13,364	529.50	572,050	585,414	540	0.3	1,080
3,300-9,999	14	26	0.5	25.34	4,478	529.50	187,142	191,620	177	0.1	353
10,000-49,999	6	26	0.5	26.05	2,195	529.50	89,227	91,422	84	0.0	169
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	1	26	0.5	31.26	351	529.50	11,886	12,237	11	0.0	22
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**1,379**				**$ 401,026**		**$ 18,987,629**	**$ 19,388,655**	**17,930**	**8.6**	**35,860**
Grand Totals	**6,097**				**$ 1,928,904**	0	**$ 83,942,963**	**$ 85,871,867**	**79,266**	**38.1**	**158,533**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities," column J.
(B) Semimonthly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems, plus two matrix spike samples.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) Cost per sample includes $403 in lab costs, $88.70 for shipping, and $37.80 in additional costs. Assumes all plants ship samples to private lab for *Cryptosporidium* analysis. Samples must be shipped overnight to meet 24-hour holding time requirements. Costs based on FedEx priority overnight rates for 10 L sample (22 LB) shipped in a 34-quart polyethylene cooler packed with wet ice, median cost for all zones. Samples generating a pellet volume of >0.5 ml require multiple subsample processing at a cost of $140 each. During the ICR Supplemental Survey, approximately 27 percent of field samples required analysis of multiple subsamples, resulting in an additional per-plant charge of $38 ($140 x 0.27).

Exhibit D.33c Burden and Cost to Plants Associated with *Cryptosporidium* Monitoring for Bin Reclassification for All System Types, by System Size Based on ICRSSL Occurrence Distribution, Alternative A2

System Size (Population Served)	Baseline # of Plants Conducting *Crypto-sporidium* Monitoring	Sampling				Sample Analysis		Total Cost	Total Burden (Hours)	Total Burden (FTEs)	Responses
		# of *Crypto-sporidium* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Cost per Sample	Total Laboratory Analysis Cost (O&M)				
	A	B	C	D	E = A*B*C*D	F	G = A*B*F	H = E+G	I = A*B*C	J = I/2080	K = A*B
CWSs											
<100	270	26	0.5	$ 21.44	$ 75,337	$ 529.50	$ 3,721,174	$ 3,796,511	3,514	1.7	7,028
100-499	614	26	0.5	23.09	184,295	529.50	8,452,516	8,636,811	7,982	3.8	15,963
500-999	388	26	0.5	24.74	124,875	529.50	5,345,304	5,470,179	5,048	2.4	10,095
1,000-3,299	925	26	0.5	24.74	297,551	529.50	12,736,737	13,034,288	12,027	5.8	24,054
3,300-9,999	911	26	0.5	25.34	300,129	529.50	12,542,892	12,843,021	11,844	5.7	23,688
10,000-49,999	812	26	0.5	26.05	274,874	529.50	11,174,325	11,449,198	10,552	5.1	21,104
50,000-99,999	196	26	0.5	26.05	66,493	529.50	2,703,126	2,769,619	2,553	1.2	5,105
100,000-999,999	235	26	0.5	31.26	95,377	529.50	3,231,089	3,326,466	3,051	1.5	6,102
≥ 1 Million	40	26	0.5	31.26	16,304	529.50	552,333	568,638	522	0.3	1,043
National Totals	**4,392**				**$ 1,435,236**		**$ 60,459,496**	**$ 61,894,731**	**57,091**	**27.4**	**114,182**
NTNCWSs											
<100	141	26	0.5	$ 21.44	$ 39,294	$ 529.50	$ 1,940,876	$ 1,980,170	1,833	0.9	3,665
100-499	209	26	0.5	23.09	62,733	529.50	2,877,198	2,939,932	2,717	1.3	5,434
500-999	70	26	0.5	24.74	22,593	529.50	967,112	989,705	913	0.4	1,826
1,000-3,299	52	26	0.5	24.74	16,865	529.50	721,901	738,766	682	0.3	1,363
3,300-9,999	11	26	0.5	25.34	3,570	529.50	149,187	152,757	141	0.1	282
10,000-49,999	1	26	0.5	26.05	251	529.50	10,197	10,448	10	0.0	19
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	-	26	0.5	31.26	-	529.50	-	-	-	-	-
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**484**				**$ 145,306**		**$ 6,666,472**	**$ 6,811,778**	**6,295**	**3.0**	**12,590**
TNCWSs											
<100	764	26	0.5	$ 21.44	$ 212,819	$ 529.50	$ 10,511,907	$ 10,724,726	9,926	4.8	19,853
100-499	490	26	0.5	23.09	147,114	529.50	6,747,239	6,894,353	6,371	3.1	12,743
500-999	76	26	0.5	24.74	24,467	529.50	1,047,302	1,071,768	989	0.5	1,978
1,000-3,299	43	26	0.5	24.74	13,897	529.50	594,859	608,756	562	0.3	1,123
3,300-9,999	14	26	0.5	25.34	4,655	529.50	194,525	199,180	184	0.1	367
10,000-49,999	7	26	0.5	26.05	2,310	529.50	93,927	96,238	89	0.0	177
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	1	26	0.5	31.26	359	529.50	12,150	12,509	11	0.0	23
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**1,395**				**$ 405,620**		**$ 19,201,909**	**$ 19,607,530**	**18,132**	**8.7**	**36,264**
Grand Totals	**6,271**				**$ 1,986,162**		**$ 86,327,877**	**$ 88,314,039**	**81,518**	**39.2**	**163,037**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities," column J.
(B) Semimonthly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems, plus two matrix spike samples.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) Cost per sample includes $403 in lab costs, $88.70 for shipping, and $37.80 in additional costs. Assumes all plants ship samples to private lab for *Cryptosporidium* analysis. Samples must be shipped overnight to meet 24-hour holding time requirements. Costs based on FedEx priority overnight rates for 10 L sample (22 LB) shipped in a 34-quart polyethylene cooler packed with wet ice, median cost for all zones. Samples generating a pellet volume of >0.5 ml require multiple subsample processing at a cost of $140 each. During the ICR Supplemental Survey, approximately 27 percent of field samples required analysis of multiple subsamples, resulting in an additional per-plant charge of $38 ($140 x 0.27).

Exhibit D.34a Burden and Cost to Plants Associated with *Cryptosporidium* Monitoring for Bin Reclassification for All System Types, by System Size Based on ICR Occurrence Distribution, Alternative A3

System Size (Population Served)	Baseline # of Plants Conducting *Crypto-sporidium* Monitoring	Sampling				Sample Analysis		Total Cost	Total Burden (Hours)	Total Burden (FTEs)	Responses
		# of *Crypto-sporidium* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Cost per Sample	Total Laboratory Analysis Cost (O&M)				
	A	B	C	D	E = A*B*C*D	F	G = A*B*F	H = E+G	I = A*B*C	J = I/2080	K = A*B
CWSs											
<100	92	26	0.5	$ 21.44	$ 25,716	$529.50	$ 1,270,192	$ 1,295,908	1,199	0.6	2,399
100-499	210	26	0.5	23.09	63,026	529.50	2,890,646	2,953,672	2,730	1.3	5,459
500-999	133	26	0.5	24.74	42,702	529.50	1,827,865	1,870,567	1,726	0.8	3,452
1,000-3,299	330	26	0.5	24.74	106,125	529.50	4,542,697	4,648,822	4,290	2.1	8,579
3,300-9,999	325	26	0.5	25.34	107,126	529.50	4,476,978	4,584,104	4,228	2.0	8,455
10,000-49,999	744	26	0.5	26.05	251,997	529.50	10,244,319	10,496,315	9,674	4.7	19,347
50,000-99,999	180	26	0.5	26.05	60,962	529.50	2,478,255	2,539,217	2,340	1.1	4,680
100,000-999,999	215	26	0.5	31.26	87,483	529.50	2,963,687	3,051,170	2,799	1.3	5,597
≥ 1 Million	37	26	0.5	31.26	14,957	529.50	506,687	521,644	478	0.2	957
National Totals	**2,266**				**$ 760,094**		**$ 31,201,326**	**$ 31,961,420**	**29,463**	**14.2**	**58,926**
NTNCWSs											
<100	48	26	0.5	$ 21.44	$ 13,413	$529.50	$ 662,502	$ 675,915	626	0.3	1,251
100-499	71	26	0.5	23.09	21,454	529.50	983,963	1,005,417	929	0.4	1,858
500-999	24	26	0.5	24.74	7,726	529.50	330,711	338,437	312	0.2	625
1,000-3,299	19	26	0.5	24.74	6,015	529.50	257,474	263,489	243	0.1	486
3,300-9,999	4	26	0.5	25.34	1,274	529.50	53,250	54,524	50	0.0	101
10,000-49,999	1	26	0.5	26.05	230	529.50	9,348	9,578	9	0.0	18
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	-	26	0.5	31.26	-	529.50	-	-	-	-	-
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**167**				**$ 50,112**		**$ 2,297,248**	**$ 2,347,360**	**2,169**	**1.0**	**4,339**
TNCWSs											
<100	261	26	0.5	$ 21.44	$ 72,865	$529.50	$ 3,599,085	$ 3,671,950	3,399	1.6	6,797
100-499	168	26	0.5	23.09	50,369	529.50	2,310,132	2,360,501	2,181	1.0	4,363
500-999	26	26	0.5	24.74	8,376	529.50	358,548	366,925	339	0.2	677
1,000-3,299	15	26	0.5	24.74	4,954	529.50	212,056	217,010	200	0.1	400
3,300-9,999	5	26	0.5	25.34	1,661	529.50	69,396	71,057	66	0.0	131
10,000-49,999	6	26	0.5	26.05	2,122	529.50	86,261	88,383	81	0.0	163
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	1	26	0.5	31.26	346	529.50	11,723	12,069	11	0.0	22
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**483**				**$ 140,693**		**$ 6,647,200**	**$ 6,787,894**	**6,277**	**3.0**	**12,554**
Grand Totals	**2,916**				**$ 950,899**		**$ 40,145,774**	**$ 41,096,673**	**37,909**	**18.2**	**75,818**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities," column J.
(B) Semimonthly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems, plus two matrix spike samples.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) Cost per sample includes $403 in lab costs, $88.70 for shipping, and $37.80 in additional costs. Assumes all plants ship samples to private lab for *Cryptosporidium* analysis. Samples must be shipped overnight to meet 24-hour holding time requirements. Costs based on FedEx priority overnight rates for 10 L sample (22 LB) shipped in a 34-quart polyethylene cooler packed with wet ice, median cost for all zones. Samples generating a pellet volume of >0.5 ml require multiple subsample processing at a cost of $140 each. During the ICR Supplemental Survey, approximately 27 percent of field samples required analysis of multiple subsamples, resulting in an additional per-plant charge of $38 ($140 x 0.27).

Exhibit D.34b Burden and Cost to Plants Associated with *Cryptosporidium* Monitoring for Bin Reclassification for All System Types, by System Size Based on ICRSSM Occurrence Distribution, Alternative A3

System Size (Population Served)	Baseline # of Plants Conducting *Crypto-sporidium* Monitoring	Sampling				Sample Analysis		Total Cost	Total Burden (Hours)	Total Burden (FTEs)	Responses
		# of *Crypto-sporidium* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Cost per Sample	Total Laboratory Analysis Cost (O&M)				
	A	B	C	D	E = A*B*C*D	F	G = A*B*F	H = E+G	I = A*B*C	J = I/2080	K = A*B
CWSs											
<100	74	26	0.5	$ 21.44	$ 20,691	$529.50	$ 1,022,017	$ 1,042,708	965	0.5	1,930
100-499	168	26	0.5	23.09	50,569	529.50	2,319,308	2,369,877	2,190	1.1	4,380
500-999	107	26	0.5	24.74	34,262	529.50	1,466,586	1,500,848	1,385	0.7	2,770
1,000-3,299	274	26	0.5	24.74	88,183	529.50	3,774,708	3,862,892	3,564	1.7	7,129
3,300-9,999	270	26	0.5	25.34	88,968	529.50	3,718,127	3,807,095	3,511	1.7	7,022
10,000-49,999	821	26	0.5	26.05	278,068	529.50	11,304,172	11,582,239	10,674	5.1	21,349
50,000-99,999	199	26	0.5	26.05	67,245	529.50	2,733,682	2,800,927	2,581	1.2	5,163
100,000-999,999	237	26	0.5	31.26	96,352	529.50	3,264,138	3,360,491	3,082	1.5	6,165
≥ 1 Million	41	26	0.5	31.26	16,469	529.50	557,930	574,399	527	0.3	1,054
National Totals	**2,191**				**$ 740,808**		**$ 30,160,669**	**$ 30,901,477**	**28,480**	**13.7**	**56,961**
NTNCWSs											
<100	39	26	0.5	$ 21.44	$ 10,792	$529.50	$ 533,060	$ 543,852	503	0.2	1,007
100-499	57	26	0.5	23.09	17,214	529.50	789,482	806,696	745	0.4	1,491
500-999	19	26	0.5	24.74	6,199	529.50	265,346	271,544	251	0.1	501
1,000-3,299	16	26	0.5	24.74	4,998	529.50	213,945	218,944	202	0.1	404
3,300-9,999	3	26	0.5	25.34	1,058	529.50	44,224	45,282	42	0.0	84
10,000-49,999	1	26	0.5	26.05	254	529.50	10,316	10,569	10	0.0	19
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	-	26	0.5	31.26	-	529.50	-	-	-	-	-
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**135**				**$ 40,515**		**$ 1,856,373**	**$ 1,896,887**	**1,753**	**0.8**	**3,506**
TNCWSs											
<100	209	26	0.5	$ 21.44	$ 58,362	$529.50	$ 2,882,736	$ 2,941,099	2,722	1.3	5,444
100-499	134	26	0.5	23.09	40,344	529.50	1,850,331	1,890,675	1,747	0.8	3,494
500-999	21	26	0.5	24.74	6,709	529.50	287,184	293,893	271	0.1	542
1,000-3,299	13	26	0.5	24.74	4,111	529.50	175,992	180,104	166	0.1	332
3,300-9,999	4	26	0.5	25.34	1,377	529.50	57,565	58,942	54	0.0	109
10,000-49,999	7	26	0.5	26.05	2,337	529.50	94,997	97,334	90	0.0	179
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	1	26	0.5	31.26	360	529.50	12,203	12,563	12	0.0	23
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**389**				**$ 113,601**		**$ 5,361,009**	**$ 5,474,610**	**5,062**	**2.4**	**10,125**
Grand Totals	**2,715**				**$ 894,924**		**$ 37,378,051**	**$ 38,272,975**	**35,296**	**17.0**	**70,591**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities," column J.
(B) Semimonthly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems, plus two matrix spike samples.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) Cost per sample includes $403 in lab costs, $88.70 for shipping, and $37.80 in additional costs. Assumes all plants ship samples to private lab for *Cryptosporidium* analysis. Samples must be shipped overnight to meet 24-hour holding time requirements. Costs based on FedEx priority overnight rates for 10 L sample (22 LB) shipped in a 34-quart polyethylene cooler packed with wet ice, median cost for all zones. Samples generating a pellet volume of >0.5 ml require multiple subsample processing at a cost of $140 each. During the ICR Supplemental Survey, approximately 27 percent of field samples required analysis of multiple subsamples, resulting in an additional per-plant charge of $38 ($140 x 0.27).

Exhibit D.34c Burden and Cost to Plants Associated with *Cryptosporidium* Monitoring for Bin Reclassification for All System Types by System Size, Based on ICRSSL Occurrence Distribution, Alternative A3

System Size (Population Served)	Baseline # of Plants Conducting *Crypto-sporidium* Monitoring	Sampling				Sample Analysis		Total Cost	Total Burden (Hours)	Total Burden (FTEs)	Responses
		# of *Crypto-sporidium* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Cost per Sample	Total Laboratory Analysis Cost (O&M)				
	A	B	C	D	E = A*B*C*D	F	G = A*B*F	H = E+G	I = A*B*C	J = I/2080	K = A*B
CWSs											
<100	62	26	0.5	$ 21.44	$ 17,149	$529.50	$ 847,052	$ 864,201	800	0.4	1,600
100-499	140	26	0.5	23.09	41,879	529.50	1,920,751	1,962,630	1,814	0.9	3,627
500-999	88	26	0.5	24.74	28,374	529.50	1,214,563	1,242,937	1,147	0.6	2,294
1,000-3,299	229	26	0.5	24.74	73,637	529.50	3,152,031	3,225,668	2,976	1.4	5,953
3,300-9,999	225	26	0.5	25.34	74,268	529.50	3,103,792	3,178,060	2,931	1.4	5,862
10,000-49,999	867	26	0.5	26.05	293,740	529.50	11,941,288	12,235,028	11,276	5.4	22,552
50,000-99,999	210	26	0.5	26.05	71,028	529.50	2,887,467	2,958,495	2,727	1.3	5,453
100,000-999,999	250	26	0.5	31.26	101,623	529.50	3,442,693	3,544,316	3,251	1.6	6,502
≥ 1 Million	43	26	0.5	31.26	17,369	529.50	588,424	605,794	556	0.3	1,111
National Totals	**2,114**				**$ 719,067**		**$ 29,098,061**	**$29,817,129**	**27,477**	**13.2**	**54,954**
NTNCWSs											
<100	32	26	0.5	$ 21.44	$ 8,945	$529.50	$ 441,802	$ 450,747	417	0.2	834
100-499	47	26	0.5	23.09	14,256	529.50	653,815	668,070	617	0.3	1,235
500-999	16	26	0.5	24.74	5,134	529.50	219,748	224,881	208	0.1	415
1,000-3,299	13	26	0.5	24.74	4,174	529.50	178,653	182,827	169	0.1	337
3,300-9,999	3	26	0.5	25.34	883	529.50	36,917	37,800	35	0.0	70
10,000-49,999	1	26	0.5	26.05	268	529.50	10,897	11,165	10	0.0	21
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	-	26	0.5	31.26	-	529.50	-	-	-	-	-
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**112**				**$ 33,659**		**$ 1,541,832**	**$ 1,575,491**	**1,456**	**0.7**	**2,912**
TNCWSs											
<100	173	26	0.5	$ 21.44	$ 48,310	$529.50	$ 2,386,212	$ 2,434,522	2,253	1.1	4,507
100-499	111	26	0.5	23.09	33,395	529.50	1,531,629	1,565,024	1,446	0.7	2,893
500-999	17	26	0.5	24.74	5,554	529.50	237,719	243,273	224	0.1	449
1,000-3,299	11	26	0.5	24.74	3,432	529.50	146,917	150,349	139	0.1	277
3,300-9,999	3	26	0.5	25.34	1,149	529.50	48,039	49,189	45	0.0	91
10,000-49,999	7	26	0.5	26.05	2,466	529.50	100,249	102,715	95	0.0	189
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	1	26	0.5	31.26	369	529.50	12,489	12,857	12	0.0	24
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**324**				**$ 94,675**		**$ 4,463,254**	**$ 4,557,929**	**4,215**	**2.0**	**8,429**
Grand Totals	**2,550**				**$ 847,401**		**$ 35,103,147**	**$35,950,548**	**33,147**	**15.9**	**66,295**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities," column J.
(B) Semimonthly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems, plus two matrix spike samples.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) Cost per sample includes $403 in lab costs, $88.70 for shipping, and $37.80 in additional costs. Assumes all plants ship samples to private lab for *Cryptosporidium* analysis. Samples must be shipped overnight to meet 24-hour holding time requirements. Costs based on FedEx priority overnight rates for 10 L sample (22 LB) shipped in a 34-quart polyethylene cooler packed with wet ice, median cost for all zones. Samples generating a pellet volume of >0.5 ml require multiple subsample processing at a cost of $140 each. During the ICR Supplemental Survey, approximately 27 percent of field samples required analysis of multiple subsamples, resulting in an additional per-plant charge of $38 ($140 x 0.27).

Exhibit D.35a Burden and Cost to Plants Associated with *Cryptosporidium* Monitoring for Bin Reclassification for All System Types, by System Size Based on ICR Occurrence Distribution, Alternative A4

System Size (Population Served)	Baseline # of Plants Conducting *Crypto-sporidium* Monitoring	Sampling				Sample Analysis		Total Cost	Total Burden (Hours)	Total Burden (FTEs)	Responses
		# of *Crypto-sporidium* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Cost per Sample	Total Laboratory Analysis Cost (O&M)				
	A	B	C	D	E = A*B*C*D	F	G = A*B*F	H = E+G	I = A*B*C	J = I/2080	K = A*B
CWSs											
<100	83	26	0.5	$ 21.44	$ 23,258	$ 529.50	$ 1,148,801	$ 1,172,059	1,085	0.5	2,170
100-499	189	26	0.5	23.09	56,794	529.50	2,604,780	2,661,574	2,460	1.2	4,919
500-999	120	26	0.5	24.74	38,482	529.50	1,647,213	1,685,694	1,555	0.7	3,111
1,000-3,299	312	26	0.5	24.74	100,379	529.50	4,296,756	4,397,135	4,057	2.0	8,115
3,300-9,999	307	26	0.5	25.34	101,162	529.50	4,227,732	4,328,894	3,992	1.9	7,984
10,000-49,999	926	26	0.5	26.05	313,618	529.50	12,749,385	13,063,003	12,039	5.8	24,078
50,000-99,999	224	26	0.5	26.05	75,825	529.50	3,082,477	3,158,302	2,911	1.4	5,821
100,000-999,999	267	26	0.5	31.26	108,646	529.50	3,680,615	3,789,261	3,476	1.7	6,951
≥ 1 Million	46	26	0.5	31.26	18,569	529.50	629,070	647,639	594	0.3	1,188
National Totals	**2,475**				**$ 836,733**		**$ 34,066,829**	**$ 34,903,561**	**32,169**	**15.5**	**64,338**
NTNCWSs											
<100	44	26	0.5	$ 21.44	$ 12,131	$ 529.50	$ 599,187	$ 611,318	566	0.3	1,132
100-499	64	26	0.5	23.09	19,332	529.50	886,655	905,988	837	0.4	1,675
500-999	22	26	0.5	24.74	6,962	529.50	298,026	304,988	281	0.1	563
1,000-3,299	18	26	0.5	24.74	5,689	529.50	243,534	249,224	230	0.1	460
3,300-9,999	4	26	0.5	25.34	1,203	529.50	50,285	51,489	47	0.0	95
10,000-49,999	1	26	0.5	26.05	286	529.50	11,634	11,921	11	0.0	22
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	-	26	0.5	31.26	-	529.50	-	-	-	-	-
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**152**				**$ 45,604**		**$ 2,089,323**	**$ 2,134,927**	**1,973**	**0.9**	**3,946**
TNCWSs											
<100	235	26	0.5	$ 21.44	$ 65,511	$ 529.50	$ 3,235,845	$ 3,301,356	3,056	1.5	6,111
100-499	151	26	0.5	23.09	45,286	529.50	2,076,980	2,122,265	1,961	0.9	3,923
500-999	23	26	0.5	24.74	7,531	529.50	322,382	329,913	304	0.1	609
1,000-3,299	15	26	0.5	24.74	4,678	529.50	200,250	204,928	189	0.1	378
3,300-9,999	5	26	0.5	25.34	1,566	529.50	65,429	66,995	62	0.0	124
10,000-49,999	8	26	0.5	26.05	2,630	529.50	106,910	109,540	101	0.0	202
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	1	26	0.5	31.26	380	529.50	12,869	13,249	12	0.0	24
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**437**				**$ 127,582**		**$ 6,020,665**	**$ 6,148,247**	**5,685**	**2.7**	**11,370**
Grand Totals	**3,064**				**$ 1,009,919**		**$ 42,176,817**	**$ 43,186,735**	**39,827**	**19.1**	**79,654**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities," column J.
(B) Semimonthly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems, plus two matrix spike samples.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) Cost per sample includes $403 in lab costs, $88.70 for shipping, and $37.80 in additional costs. Assumes all plants ship samples to private lab for *Cryptosporidium* analysis. Samples must be shipped overnight to meet 24-hour holding time requirements. Costs based on FedEx priority overnight rates for 10 L sample (22 LB) shipped in a 34-quart polyethylene cooler packed with wet ice, median cost for all zones. Samples generating a pellet volume of >0.5 ml require multiple subsample processing at a cost of $140 each. During the ICR Supplemental Survey, approximately 27 percent of field samples required analysis of multiple subsamples, resulting in an additional per-plant charge of $38 ($140 x 0.27).

Exhibit D.35b Burden and Cost to Plants Associated with *Cryptosporidium* Monitoring for Bin Reclassification for All System Types, by System Size Based on ICRSSM Occurrence Distribution, Alternative A4

System Size (Population Served)	Baseline # of Plants Conducting *Crypto-sporidium* Monitoring	Sampling				Sample Analysis		Total Cost	Total Burden (Hours)	Total Burden (FTEs)	Responses
		# of *Crypto-sporidium* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Cost per Sample	Total Laboratory Analysis Cost (O&M)				
	A	B	C	D	E = A*B*C*D	F	G = A*B*F	H = E+G	I = A*B*C	J = I/2080	K = A*B
CWSs											
<100	60	26	0.5	$ 21.44	$ 16,655	$ 529.50	$ 822,636	$ 839,291	777	0.4	1,554
100-499	135	26	0.5	23.09	40,634	529.50	1,863,622	1,904,255	1,760	0.8	3,520
500-999	86	26	0.5	24.74	27,532	529.50	1,178,505	1,206,037	1,113	0.5	2,226
1,000-3,299	223	26	0.5	24.74	71,763	529.50	3,071,835	3,143,598	2,901	1.4	5,801
3,300-9,999	219	26	0.5	25.34	72,295	529.50	3,021,329	3,093,624	2,853	1.4	5,706
10,000-49,999	990	26	0.5	26.05	335,248	529.50	13,628,700	13,963,948	12,869	6.2	25,739
50,000-99,999	239	26	0.5	26.05	81,051	529.50	3,294,926	3,375,977	3,111	1.5	6,223
100,000-999,999	285	26	0.5	31.26	115,825	529.50	3,923,826	4,039,651	3,705	1.8	7,410
≥ 1 Million	49	26	0.5	31.26	19,796	529.50	670,633	690,429	633	0.3	1,267
National Totals	**2,286**				**$ 780,798**		**$ 31,476,012**	**$ 32,256,811**	**29,722**	**14.3**	**59,445**
NTNCWSs											
<100	31	26	0.5	$ 21.44	$ 8,687	$ 529.50	$ 429,067	$ 437,754	405	0.2	810
100-499	46	26	0.5	23.09	13,832	529.50	634,368	648,200	599	0.3	1,198
500-999	15	26	0.5	24.74	4,981	529.50	213,224	218,205	201	0.1	403
1,000-3,299	13	26	0.5	24.74	4,067	529.50	174,108	178,175	164	0.1	329
3,300-9,999	3	26	0.5	25.34	860	529.50	35,936	36,796	34	0.0	68
10,000-49,999	1	26	0.5	26.05	306	529.50	12,437	12,743	12	0.0	23
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	-	26	0.5	31.26	-	529.50	-	-	-	-	-
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**109**				**$ 32,733**		**$ 1,499,140**	**$ 1,531,873**	**1,416**	**0.7**	**2,831**
TNCWSs											
<100	168	26	0.5	$ 21.44	$ 46,846	$ 529.50	$ 2,313,891	$ 2,360,737	2,185	1.1	4,370
100-499	108	26	0.5	23.09	32,383	529.50	1,485,209	1,517,591	1,402	0.7	2,805
500-999	17	26	0.5	24.74	5,385	529.50	230,527	235,912	218	0.1	435
1,000-3,299	10	26	0.5	24.74	3,344	529.50	143,143	146,487	135	0.1	270
3,300-9,999	3	26	0.5	25.34	1,119	529.50	46,752	47,871	44	0.0	88
10,000-49,999	8	26	0.5	26.05	2,808	529.50	114,159	116,967	108	0.1	216
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	1	26	0.5	31.26	391	529.50	13,258	13,649	13	0.0	25
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**316**				**$ 92,277**		**$ 4,346,938**	**$ 4,439,214**	**4,105**	**2.0**	**8,210**
Grand Totals	**2,711**				**$ 905,808**		**$ 37,322,090**	**$ 38,227,898**	**35,243**	**16.9**	**70,486**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities," column J.
(B) Semimonthly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems, plus two matrix spike samples.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) Cost per sample includes $403 in lab costs, $88.70 for shipping, and $37.80 in additional costs. Assumes all plants ship samples to private lab for *Cryptosporidium* analysis. Samples must be shipped overnight to meet 24-hour holding time requirements. Costs based on FedEx priority overnight rates for 10 L sample (22 LB) shipped in a 34-quart polyethylene cooler packed with wet ice, median cost for all zones. Samples generating a pellet volume of >0.5 ml require multiple subsample processing at a cost of $140 each. During the ICR Supplemental Survey, approximately 27 percent of field samples required analysis of multiple subsamples, resulting in an additional per-plant charge of $38 ($140 x 0.27).

Exhibit D.35c Burden and Cost to Plants Associated with *Cryptosporidium* Monitoring for Bin Reclassification for All System Types, by System Size Based on ICRSSL Occurrence Distribution, Alternative A4

System Size (Population Served)	Baseline # of Plants Conducting *Crypto-sporidium* Monitoring	Sampling				Sample Analysis		Total Cost	Total Burden (Hours)	Total Burden (FTEs)	Responses
		# of *Crypto-sporidium* Samples	Hours per Sample	Cost per Labor Hour	Total Sampling Labor Cost	Cost per Sample	Total Laboratory Analysis Cost (O&M)				
	A	B	C	D	E = A*B*C*D	F	G = A*B*F	H = E+G	I = A*B*C	J = I/2080	K = A*B
CWSs											
<100	45	26	0.5	$ 21.44	$ 12,453	$529.50	$ 615,103	$ 627,556	581	0.3	1,162
100-499	101	26	0.5	23.09	30,369	529.50	1,392,848	1,423,217	1,315	0.6	2,630
500-999	64	26	0.5	24.74	20,577	529.50	880,789	901,366	832	0.4	1,663
1,000-3,299	167	26	0.5	24.74	53,609	529.50	2,294,747	2,348,356	2,167	1.0	4,334
3,300-9,999	164	26	0.5	25.34	54,000	529.50	2,256,751	2,310,751	2,131	1.0	4,262
10,000-49,999	1,017	26	0.5	26.05	344,528	529.50	14,005,961	14,350,489	13,226	6.4	26,451
50,000-99,999	246	26	0.5	26.05	83,293	529.50	3,386,093	3,469,387	3,197	1.5	6,395
100,000-999,999	292	26	0.5	31.26	118,861	529.50	4,026,671	4,145,532	3,802	1.8	7,605
≥ 1 Million	50	26	0.5	31.26	20,315	529.50	688,209	708,524	650	0.3	1,300
National Totals	**2,146**				**$ 738,005**		**$ 29,547,172**	**$ 30,285,177**	**27,901**	**13.4**	**55,802**
NTNCWSs											
<100	23	26	0.5	$ 21.44	$ 6,495	$529.50	$ 320,823	$ 327,318	303	0.1	606
100-499	34	26	0.5	23.09	10,337	529.50	474,119	484,457	448	0.2	895
500-999	12	26	0.5	24.74	3,723	529.50	159,359	163,082	150	0.1	301
1,000-3,299	9	26	0.5	24.74	3,038	529.50	130,063	133,102	123	0.1	246
3,300-9,999	2	26	0.5	25.34	642	529.50	26,842	27,484	25	0.0	51
10,000-49,999	1	26	0.5	26.05	314	529.50	12,781	13,096	12	0.0	24
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	-	26	0.5	31.26	-	529.50	-	-	-	-	-
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**82**				**$ 24,551**		**$ 1,123,988**	**$ 1,148,538**	**1,061**	**0.5**	**2,123**
TNCWSs											
<100	126	26	0.5	$ 21.44	$ 35,002	$529.50	$ 1,728,898	$ 1,763,901	1,633	0.8	3,265
100-499	81	26	0.5	23.09	24,196	529.50	1,109,721	1,133,917	1,048	0.5	2,096
500-999	13	26	0.5	24.74	4,024	529.50	172,243	176,267	163	0.1	325
1,000-3,299	8	26	0.5	24.74	2,498	529.50	106,924	109,422	101	0.0	202
3,300-9,999	3	26	0.5	25.34	836	529.50	34,919	35,754	33	0.0	66
10,000-49,999	9	26	0.5	26.05	2,885	529.50	117,269	120,153	111	0.1	221
50,000-99,999	-	26	0.5	26.05	-	529.50	-	-	-	-	-
100,000-999,999	1	26	0.5	31.26	396	529.50	13,422	13,818	13	0.0	25
≥ 1 Million	-	26	0.5	31.26	-	529.50	-	-	-	-	-
National Totals	**238**				**$ 69,837**		**$ 3,283,397**	**$ 3,353,233**	**3,100**	**1.5**	**6,201**
Grand Totals	**2,466**				**$ 832,393**		**$ 33,954,556**	**$ 34,786,948**	**32,063**	**15.4**	**64,126**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Taken from "Baseline for Implementation and Monitoring Activities," column J.
(B) Semimonthly source water monitoring for one year for small systems and monthly samples for 24 months for medium and large systems, plus two matrix spike samples.
(C) Estimate of labor for collecting sample and shipping, based on expert opinion.
(D) All size categories were assumed to use a technical rate of $24.96/hour, based on Bureau of Labor Statistics rates.
(F) Cost per sample includes $403 in lab costs, $88.70 for shipping, and $37.80 in additional costs. Assumes all plants ship samples to private lab for *Cryptosporidium* analysis. Samples must be shipped overnight to meet 24-hour holding time requirements. Costs based on FedEx priority overnight rates for 10 L sample (22 LB) shipped in a 34-quart polyethylene cooler packed with wet ice, median cost for all zones. Samples generating a pellet volume of >0.5 ml require multiple subsample processing at a cost of $140 each. During the ICR Supplemental Survey, approximately 27 percent of field samples required analysis of multiple subsamples, resulting in an additional per-plant charge of $38 ($140 x 0.27).

Exhibit D.36a Reporting Cost and Labor Estimates for Bin Reclassification Monitoring for All System Types, by System Size, Based on ICR Occurrence Distribution, Alternative A2

System Size (Population Served)	Hours per Plant	Cost per Labor Hour	Baseline # of Plants Reporting	Total Cost	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C	D = A*B*C	E = A*C	F = E/2080
CWSs						
<100	6.5	$ 21.44	255	$ 35,529	1,657	0.8
100-499	6.5	23.09	582	87,421	3,786	1.8
500-999	6.5	30.03	368	71,903	2,394	1.2
1,000-3,299	6.5	30.03	816	159,243	5,302	2.5
3,300-9,999	6.5	30.51	804	159,489	5,227	2.5
10,000-49,999	6	31.08	708	132,048	4,249	2.0
50,000-99,999	6	31.08	171	31,967	1,029	0.5
100,000-999,999	6	35.25	205	43,260	1,227	0.6
≥ 1 Million	6	35.25	35	7,398	210	0.1
National Totals			**3,945**	**$ 728,258**	**25,081**	**12.1**
NTNCWSs						
<100	6.5	$ 21.44	133	$ 18,531	864	0.4
100-499	6.5	23.09	198	29,758	1,289	0.6
500-999	6.5	30.03	67	13,009	433	0.2
1,000-3,299	6.5	30.03	46	9,026	301	0.1
3,300-9,999	6.5	30.51	10	1,897	62	0.0
10,000-49,999	6	31.08	1	121	4	0.0
50,000-99,999	6	31.08	-	-	-	-
100,000-999,999	6	35.25	-	-	-	-
≥ 1 Million	6	35.25	-	-	-	-
National Totals			**454**	**$ 72,341**	**2,953**	**1.4**
TNCWSs						
<100	6.5	$ 21.44	727	$ 101,310	4,725	2.3
100-499	6.5	23.09	467	70,032	3,033	1.5
500-999	6.5	30.03	72	14,138	471	0.2
1,000-3,299	6.5	30.03	38	7,458	248	0.1
3,300-9,999	6.5	30.51	13	2,480	81	0.0
10,000-49,999	6	31.08	6	1,113	36	0.0
50,000-99,999	6	31.08	-	-	-	-
100,000-999,999	6	35.25	1	176	5	0.0
≥ 1 Million	6	35.25	-	-	-	-
National Totals			**1,324**	**$ 196,708**	**8,599**	**4.1**
Grand Totals			**5,723**	**$ 997,307**	**36,634**	**17.6**

Notes:

Detail may not add exactly to totals due to independent rounding.

Sources:

(A) Hours per plant reporting to the State/Primacy Agency for bin classification exemption and to report *E. coli* and *Cryptosporidium* monitoring data and bin classification. Assumes 15 minutes per sample. Based on 24 monthly *E. coli* and *Cryptosporidium* samples for medium and large systems and 26 biweekly *E. coli* and 24 semimonthly *Cryptosporidium* samples for small systems. Although small systems will not report *E. coli* and *Cryptosporidium* results at the same time, the additional reporting burden is assumed to be negligible. The decrease in burden for small plants that report *E. coli* but are exempt from *Cryptosporidium* monitoring is also assumed to be negligible.

(B) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.

(C) Taken from "Baseline for Implementation and Monitoring Activities," column I.

Exhibit D.36b Reporting Cost and Labor Estimates for Bin Reclassification Monitoring for All System Types, by System Size, Based on ICRSSM Occurrence Distribution, Alternative A2

System Size (Population Served)	Hours per Plant	Cost per Labor Hour	Baseline # of Plants Reporting	Total Cost	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C	D = A*B*C	E = A*C	F = E/2080
CWSs						
<100	6.5	$ 21.44	267	$ 37,232	1,737	0.8
100-499	6.5	23.09	608	91,183	3,949	1.9
500-999	6.5	30.03	384	74,999	2,497	1.2
1,000-3,299	6.5	30.03	889	173,527	5,778	2.8
3,300-9,999	6.5	30.51	876	173,689	5,692	2.7
10,000-49,999	6	31.08	770	143,639	4,622	2.2
50,000-99,999	6	31.08	186	34,755	1,118	0.5
100,000-999,999	6	35.25	223	47,101	1,336	0.6
≥ 1 Million	6	35.25	38	8,052	228	0.1
National Totals			**4,241**	**$ 784,176**	**26,958**	**13.0**
NTNCWSs						
<100	6.5	$ 21.44	139	$ 19,419	906	0.4
100-499	6.5	23.09	207	31,038	1,344	0.6
500-999	6.5	30.03	70	13,569	452	0.2
1,000-3,299	6.5	30.03	50	9,835	327	0.2
3,300-9,999	6.5	30.51	10	2,066	68	0.0
10,000-49,999	6	31.08	1	131	4	0.0
50,000-99,999	6	31.08	-	-	-	-
100,000-999,999	6	35.25	-	-	-	-
≥ 1 Million	6	35.25	-	-	-	-
National Totals			**477**	**$ 76,059**	**3,101**	**1.5**
TNCWSs						
<100	6.5	$ 21.44	756	$ 105,368	4,915	2.4
100-499	6.5	23.09	485	72,837	3,154	1.5
500-999	6.5	30.03	75	14,705	490	0.2
1,000-3,299	6.5	30.03	42	8,111	270	0.1
3,300-9,999	6.5	30.51	14	2,696	88	0.0
10,000-49,999	6	31.08	6	1,209	39	0.0
50,000-99,999	6	31.08	-	-	-	-
100,000-999,999	6	35.25	1	183	5	0.0
≥ 1 Million	6	35.25	-	-	-	-
National Totals			**1,379**	**$ 205,109**	**8,961**	**4.3**
Grand Totals			**6,097**	**$ 1,065,344**	**39,020**	**18.8**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Hours per plant reporting to the State/Primacy Agency for bin classification exemption and to report *E. coli* and *Cryptosporidium* monitoring data and bin classification. Assumes 15 minutes per sample. Based on 24 monthly *E. coli* and *Cryptosporidium* samples for medium and large systems and 26 biweekly *E. coli* and 24 semimonthly *Cryptosporidium* samples for small systems. Although small systems will not report *E. coli* and *Cryptosporidium* results at the same time, the additional reporting burden is assumed to be negligible. The decrease in burden for small plants that report *E. coli* but are exempt from *Cryptosporidium* monitoring is also assumed to be negligible.

(B) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.

(C) Taken from "Baseline for Implementation and Monitoring Activities," column I.

Exhibit D.36c Reporting Cost and Labor Estimates for Bin Reclassification Monitoring for All System Types, by System Size, Based on ICRSSL Occurrence Distribution, Alternative A2

System Size (Population Served)	Hours per Plant	Cost per Labor Hour	Baseline # of Plants Reporting	Total Cost	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C	D = A*B*C	E = A*C	F = E/2080
CWSs						
<100	6.5	$ 21.44	270	$ 37,669	1,757	0.8
100-499	6.5	23.09	614	92,148	3,991	1.9
500-999	6.5	30.03	388	75,793	2,524	1.2
1,000-3,299	6.5	30.03	925	180,599	6,014	2.9
3,300-9,999	6.5	30.51	911	180,693	5,922	2.8
10,000-49,999	6	31.08	812	151,361	4,870	2.3
50,000-99,999	6	31.08	196	36,615	1,178	0.6
100,000-999,999	6	35.25	235	49,636	1,408	0.7
≥ 1 Million	6	35.25	40	8,485	241	0.1
National Totals			**4,392**	**$ 812,999**	**27,904**	**13.4**
NTNCWSs						
<100	6.5	$ 21.44	141	$ 19,647	916	0.4
100-499	6.5	23.09	209	31,367	1,358	0.7
500-999	6.5	30.03	70	13,713	457	0.2
1,000-3,299	6.5	30.03	52	10,236	341	0.2
3,300-9,999	6.5	30.51	11	2,149	70	0.0
10,000-49,999	6	31.08	1	138	4	0.0
50,000-99,999	6	31.08	-	-	-	-
100,000-999,999	6	35.25	-	-	-	-
≥ 1 Million	6	35.25	-	-	-	-
National Totals			**484**	**$ 77,250**	**3,147**	**1.5**
TNCWSs						
<100	6.5	$ 21.44	764	$ 106,409	4,963	2.4
100-499	6.5	23.09	490	73,557	3,186	1.5
500-999	6.5	30.03	76	14,850	494	0.2
1,000-3,299	6.5	30.03	43	8,435	281	0.1
3,300-9,999	6.5	30.51	14	2,802	92	0.0
10,000-49,999	6	31.08	7	1,272	41	0.0
50,000-99,999	6	31.08	-	-	-	-
100,000-999,999	6	35.25	1	187	5	0.0
≥ 1 Million	6	35.25	-	-	-	-
National Totals			**1,395**	**$ 207,513**	**9,062**	**4.4**
Grand Totals			**6,271**	**$ 1,097,762**	**40,114**	**19.3**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:

(A) Hours per plant reporting to the State/Primacy Agency for bin classification exemption and to report *E. coli* and *Cryptosporidium* monitoring data and bin classification. Assumes 15 minutes per sample. Based on 24 monthly *E. coli* and *Cryptosporidium* samples for medium and large systems and 26 biweekly *E. coli* and 24 semimonthly *Cryptosporidium* samples for small systems. Although small systems will not report *E. coli* and *Cryptosporidium* results at the same time, the additional reporting burden is assumed to be negligible. The decrease in burden for small plants that report *E. coli* but are exempt from *Cryptosporidium* monitoring is also assumed to be negligible.

(B) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.

(C) Taken from "Baseline for Implementation and Monitoring Activities," column I.

Exhibit D.37a Reporting Cost and Labor Estimates for Bin Reclassification Monitoring for All System Types, by System Size, Based on ICR Occurrence Distribution, Alternative A3

System Size (Population Served)	Hours per Plant	Cost per Labor Hour	Baseline # of Plants Reporting	Total Cost	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C	D = A*B*C	E = A*C	F = E/2080
CWSs						
<100	6.5	$ 21.44	265	$ 36,948	1,723	0.8
100-499	6.5	23.09	603	90,555	3,922	1.9
500-999	6.5	30.03	382	74,477	2,480	1.2
1,000-3,299	6.5	30.03	948	185,094	6,163	3.0
3,300-9,999	6.5	30.51	934	185,332	6,074	2.9
10,000-49,999	6	31.08	744	138,764	4,465	2.1
50,000-99,999	6	31.08	180	33,569	1,080	0.5
100,000-999,999	6	35.25	215	45,528	1,292	0.6
≥ 1 Million	6	35.25	37	7,784	221	0.1
National Totals			**4,309**	**$ 798,051**	**27,420**	**13.2**
NTNCWSs						
<100	6.5	$ 21.44	138	$ 19,271	899	0.4
100-499	6.5	23.09	205	30,825	1,335	0.6
500-999	6.5	30.03	69	13,475	449	0.2
1,000-3,299	6.5	30.03	54	10,491	349	0.2
3,300-9,999	6.5	30.51	11	2,204	72	0.0
10,000-49,999	6	31.08	1	127	4	0.0
50,000-99,999	6	31.08	-	-	-	-
100,000-999,999	6	35.25	-	-	-	-
≥ 1 Million	6	35.25	-	-	-	-
National Totals			**478**	**$ 76,393**	**3,108**	**1.5**
TNCWSs						
<100	6.5	$ 21.44	751	$ 104,692	4,883	2.3
100-499	6.5	23.09	482	72,369	3,134	1.5
500-999	6.5	30.03	75	14,609	486	0.2
1,000-3,299	6.5	30.03	44	8,640	288	0.1
3,300-9,999	6.5	30.51	14	2,873	94	0.0
10,000-49,999	6	31.08	6	1,168	38	0.0
50,000-99,999	6	31.08	-	-	-	-
100,000-999,999	6	35.25	1	180	5	0.0
≥ 1 Million	6	35.25	-	-	-	-
National Totals			**1,374**	**$ 204,532**	**8,928**	**4.3**
Grand Totals			**6,161**	**$ 1,078,975**	**39,456**	**19.0**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Hours per plant reporting to the State/Primacy Agency for bin classification exemption and to report *E. coli* and *Cryptosporidium* monitoring data and bin classification. Assumes 15 minutes per sample. Based on 24 monthly *E. coli* and *Cryptosporidium* samples for medium and large systems and 26 biweekly *E. coli* and 24 semimonthly *Cryptosporidium* samples for small systems. Although small systems will not report *E. coli* and *Cryptosporidium* results at the same time, the additional reporting burden is assumed to be negligible. The decrease in burden for small plants that report *E. coli* but are exempt from *Cryptosporidium* monitoring is also assumed to be negligible.
(B) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.
(C) Taken from "Baseline for Implementation and Monitoring Activities," column I.

Exhibit D.37b Reporting Cost and Labor Estimates for Bin Reclassification Monitoring for All System Types, by System Size, Based on ICRSSM Occurrence Distribution, Alternative A3

System Size (Population Served)	Hours per Plant	Cost per Labor Hour	Baseline # of Plants Reporting	Total Cost	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C	D = A*B*C	E = A*C	F = E/2080
CWSs						
<100	6.5	$ 21.44	273	$ 38,035	1,774	0.9
100-499	6.5	23.09	619	92,958	4,026	1.9
500-999	6.5	30.03	392	76,453	2,546	1.2
1,000-3,299	6.5	30.03	1,008	196,776	6,552	3.2
3,300-9,999	6.5	30.51	993	196,925	6,454	3.1
10,000-49,999	6	31.08	821	153,120	4,927	2.4
50,000-99,999	6	31.08	199	37,029	1,191	0.6
100,000-999,999	6	35.25	237	50,144	1,423	0.7
≥ 1 Million	6	35.25	41	8,571	243	0.1
National Totals			**4,582**	**$ 850,011**	**29,136**	**14.0**
NTNCWSs						
<100	6.5	$ 21.44	142	$ 19,838	925	0.4
100-499	6.5	23.09	211	31,643	1,370	0.7
500-999	6.5	30.03	71	13,833	461	0.2
1,000-3,299	6.5	30.03	57	11,153	371	0.2
3,300-9,999	6.5	30.51	12	2,342	77	0.0
10,000-49,999	6	31.08	1	140	4	0.0
50,000-99,999	6	31.08	-	-	-	-
100,000-999,999	6	35.25	-	-	-	-
≥ 1 Million	6	35.25	-	-	-	-
National Totals			**494**	**$ 78,948**	**3,209**	**1.5**
TNCWSs						
<100	6.5	$ 21.44	770	$ 107,284	5,004	2.4
100-499	6.5	23.09	494	74,162	3,212	1.5
500-999	6.5	30.03	77	14,971	499	0.2
1,000-3,299	6.5	30.03	47	9,175	305	0.1
3,300-9,999	6.5	30.51	15	3,049	100	0.0
10,000-49,999	6	31.08	7	1,287	41	0.0
50,000-99,999	6	31.08	-	-	-	-
100,000-999,999	6	35.25	1	187	5	0.0
≥ 1 Million	6	35.25	-	-	-	-
National Totals			**1,411**	**$ 210,114**	**9,166**	**4.4**
Grand Totals			**6,487**	**$ 1,139,074**	**41,511**	**20.0**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:

(A) Hours per plant reporting to the State/Primacy Agency for bin classification exemption and to report *E. coli* and *Cryptosporidium* monitoring data and bin classification. Assumes 15 minutes per sample. Based on 24 monthly *E. coli* and *Cryptosporidium* samples for medium and large systems and 26 biweekly *E. coli* and 24 semimonthly *Cryptosporidium* samples for small systems. Although small systems will not report *E. coli* and *Cryptosporidium* results at the same time, the additional reporting burden is assumed to be negligible. The decrease in burden for small plants that report *E. coli* but are exempt from *Cryptosporidium* monitoring is also assumed to be negligible.

(B) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.

(C) Taken from "Baseline for Implementation and Monitoring Activities," column I.

Exhibit D.37c Reporting Cost and Labor Estimates for Bin Reclassification Monitoring for All System Types, by Sytem Size, Based on ICRSSL Occurrence Distribution, Alternative A3

System Size (Population Served)	Hours per Plant	Cost per Labor Hour	Baseline # of Plants Reporting	Total Cost	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C	D = A*B*C	E = A*C	F = E/2080
CWSs						
<100	6.5	$ 21.44	275	$ 38,348	1,789	0.9
100-499	6.5	23.09	624	93,648	4,056	1.9
500-999	6.5	30.03	395	77,021	2,565	1.2
1,000-3,299	6.5	30.03	1,024	199,884	6,656	3.2
3,300-9,999	6.5	30.51	1,008	199,970	6,554	3.2
10,000-49,999	6	31.08	867	161,750	5,204	2.5
50,000-99,999	6	31.08	210	39,112	1,258	0.6
100,000-999,999	6	35.25	250	52,886	1,500	0.7
≥ 1 Million	6	35.25	43	9,039	256	0.1
National Totals			**4,696**	**$ 871,657**	**29,838**	**14.3**
NTNCWSs						
<100	6.5	$ 21.44	144	$ 20,001	933	0.4
100-499	6.5	23.09	212	31,877	1,381	0.7
500-999	6.5	30.03	71	13,935	464	0.2
1,000-3,299	6.5	30.03	58	11,329	377	0.2
3,300-9,999	6.5	30.51	12	2,378	78	0.0
10,000-49,999	6	31.08	1	148	5	0.0
50,000-99,999	6	31.08	-	-	-	-
100,000-999,999	6	35.25	-	-	-	-
≥ 1 Million	6	35.25	-	-	-	-
National Totals			**498**	**$ 79,669**	**3,237**	**1.6**
TNCWSs						
<100	6.5	$ 21.44	775	$ 108,028	5,039	2.4
100-499	6.5	23.09	498	74,676	3,234	1.6
500-999	6.5	30.03	77	15,075	502	0.2
1,000-3,299	6.5	30.03	48	9,317	310	0.1
3,300-9,999	6.5	30.51	16	3,095	101	0.0
10,000-49,999	6	31.08	7	1,358	44	0.0
50,000-99,999	6	31.08	-	-	-	-
100,000-999,999	6	35.25	1	192	5	0.0
≥ 1 Million	6	35.25	-	-	-	-
National Totals			**1,421**	**$ 211,740**	**9,235**	**4.4**
Grand Totals			**6,615**	**$ 1,163,066**	**42,311**	**20.3**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Hours per plant reporting to the State/Primacy Agency for bin classification exemption and to report *E. coli* and *Cryptosporidium* monitoring data and bin classification. Assumes 15 minutes per sample. Based on 24 monthly *E. coli* and *Cryptosporidium* samples for medium and large systems and 26 biweekly *E. coli* and 24 semimonthly *Cryptosporidium* samples for small systems. Although small systems will not report *E. coli* and *Cryptosporidium* results at the same time, the additional reporting burden is assumed to be negligible. The decrease in burden for small plants that report *E. coli* but are exempt from *Cryptosporidium* monitoring is also assumed to be negligible.
(B) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.
(C) Taken from "Baseline for Implementation and Monitoring Activities," column I.

Exhibit D.38a Reporting Cost and Labor Estimates for Bin Reclassification Monitoring
All System Types, by System Size, Based on ICR Occurrence Distribution, Alternative A4

System Size (Population Served)	Hours per Plant	Cost per Labor Hour	Baseline # of Plants Reporting	Total Cost	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C	D = A*B*C	E = A*C	F = E/2080
CWSs						
<100	6.5	$ 21.44	275	$ 38,380	1,790	0.9
100-499	6.5	23.09	624	93,719	4,059	2.0
500-999	6.5	30.03	395	77,084	2,567	1.2
1,000-3,299	6.5	30.03	1,030	201,074	6,695	3.2
3,300-9,999	6.5	30.51	1,014	201,006	6,588	3.2
10,000-49,999	6	31.08	926	172,696	5,556	2.7
50,000-99,999	6	31.08	224	41,753	1,343	0.6
100,000-999,999	6	35.25	267	56,541	1,604	0.8
≥ 1 Million	6	35.25	46	9,664	274	0.1
National Totals			**4,801**	**$ 891,918**	**30,477**	**14.7**
NTNCWSs						
<100	6.5	$ 21.44	144	$ 20,018	934	0.4
100-499	6.5	23.09	213	31,901	1,382	0.7
500-999	6.5	30.03	71	13,947	464	0.2
1,000-3,299	6.5	30.03	58	11,397	379	0.2
3,300-9,999	6.5	30.51	12	2,391	78	0.0
10,000-49,999	6	31.08	1	158	5	0.0
50,000-99,999	6	31.08	-	-	-	-
100,000-999,999	6	35.25	-	-	-	-
≥ 1 Million	6	35.25	-	-	-	-
National Totals			**499**	**$ 79,811**	**3,243**	**1.6**
TNCWSs						
<100	6.5	$ 21.44	776	$ 108,105	5,042	2.4
100-499	6.5	23.09	498	74,729	3,236	1.6
500-999	6.5	30.03	77	15,086	502	0.2
1,000-3,299	6.5	30.03	48	9,371	312	0.2
3,300-9,999	6.5	30.51	16	3,111	102	0.0
10,000-49,999	6	31.08	8	1,448	47	0.0
50,000-99,999	6	31.08	-	-	-	-
100,000-999,999	6	35.25	1	198	6	0.0
≥ 1 Million	6	35.25	-	-	-	-
National Totals			**1,423**	**$ 212,047**	**9,247**	**4.4**
Grand Totals			**6,724**	**$ 1,183,776**	**42,967**	**20.7**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Hours per plant reporting to the State/Primacy Agency for bin classification exemption and to report *E. coli* and *Cryptosporidium* monitoring data and bin classification. Assumes 15 minutes per sample. Based on 24 monthly *E. coli* and *Cryptosporidium* samples for medium and large systems and 26 biweekly *E. coli* and 24 semimonthly *Cryptosporidium* samples for small systems. Although small systems will not report *E. coli* and *Cryptosporidium* results at the same time, the additional reporting burden is assumed to be negligible. The decrease in burden for small plants that report *E. coli* but are exempt from *Cryptosporidium* monitoring is also assumed to be negligible.
(B) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.
(C) Taken from "Baseline for Implementation and Monitoring Activities," column I.

Exhibit D.38b Reporting Cost and Labor Estimates for Bin Reclassification Monitoring
All System Types, by System Size, Based on ICRSSM Occurrence Distribution, Alternative A4

System Size (Population Served)	Hours per Plant	Cost per Labor Hour	Baseline # of Plants Reporting	Total Cost	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C	D = A*B*C	E = A*C	F = E/2080
CWSs						
<100	6.5	$ 21.44	278	$ 38,732	1,807	0.9
100-499	6.5	23.09	630	94,497	4,093	2.0
500-999	6.5	30.03	398	77,723	2,588	1.2
1,000-3,299	6.5	30.03	1,038	202,590	6,746	3.2
3,300-9,999	6.5	30.51	1,021	202,444	6,635	3.2
10,000-49,999	6	31.08	990	184,607	5,940	2.9
50,000-99,999	6	31.08	239	44,631	1,436	0.7
100,000-999,999	6	35.25	285	60,278	1,710	0.8
≥ 1 Million	6	35.25	49	10,302	292	0.1
National Totals			**4,927**	**$ 915,803**	**31,246**	**15.0**
NTNCWSs						
<100	6.5	$ 21.44	145	$ 20,202	942	0.5
100-499	6.5	23.09	214	32,166	1,393	0.7
500-999	6.5	30.03	72	14,062	468	0.2
1,000-3,299	6.5	30.03	59	11,483	382	0.2
3,300-9,999	6.5	30.51	12	2,408	79	0.0
10,000-49,999	6	31.08	1	168	5	0.0
50,000-99,999	6	31.08	-	-	-	-
100,000-999,999	6	35.25	-	-	-	-
≥ 1 Million	6	35.25	-	-	-	-
National Totals			**503**	**$ 80,489**	**3,270**	**1.6**
TNCWSs						
<100	6.5	$ 21.44	782	$ 108,944	5,081	2.4
100-499	6.5	23.09	502	75,309	3,262	1.6
500-999	6.5	30.03	78	15,203	506	0.2
1,000-3,299	6.5	30.03	48	9,440	314	0.2
3,300-9,999	6.5	30.51	16	3,133	103	0.0
10,000-49,999	6	31.08	8	1,546	50	0.0
50,000-99,999	6	31.08	-	-	-	-
100,000-999,999	6	35.25	1	204	6	0.0
≥ 1 Million	6	35.25	-	-	-	-
National Totals			**1,435**	**$ 213,779**	**9,322**	**4.5**
Grand Totals			**6,865**	**$ 1,210,072**	**43,838**	**21.1**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:

(A) Hours per plant reporting to the State/Primacy Agency for bin classification exemption and to report *E. coli* and *Cryptosporidium* monitoring data and bin classification. Assumes 15 minutes per sample. Based on 24 monthly *E. coli* and *Cryptosporidium* samples for medium and large systems and 26 biweekly *E. coli* and 24 semimonthly *Cryptosporidium* samples for small systems. Although small systems will not report *E. coli* and *Cryptosporidium* results at the same time, the additional reporting burden is assumed to be negligible. The decrease in burden for small plants that report *E. coli* but are exempt from *Cryptosporidium* monitoring is also assumed to be negligible.

(B) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.

(C) Taken from "Baseline for Implementation and Monitoring Activities," column I.

Exhibit D.38c Reporting Cost and Labor Estimates for Bin Reclassification Monitoring for All System Types, by System Size, Based on ICRSSL Occurrence Distribution, Alternative A4

System Size (Population Served)	Hours per Plant	Cost per Labor Hour	Baseline # of Plants Reporting	Total Cost	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C	D = A*B*C	E = A*C	F = E/2080
CWSs						
<100	6.5	$ 21.44	279	$ 38,916	1,815	0.9
100-499	6.5	23.09	632	94,903	4,110	2.0
500-999	6.5	30.03	400	78,057	2,599	1.2
1,000-3,299	6.5	30.03	1,042	203,364	6,772	3.3
3,300-9,999	6.5	30.51	1,025	203,193	6,659	3.2
10,000-49,999	6	31.08	1,017	189,717	6,104	2.9
50,000-99,999	6	31.08	246	45,866	1,476	0.7
100,000-999,999	6	35.25	292	61,858	1,755	0.8
≥ 1 Million	6	35.25	50	10,572	300	0.1
National Totals			**4,984**	**$ 926,445**	**31,590**	**15.2**
NTNCWSs						
<100	6.5	$ 21.44	146	$ 20,298	947	0.5
100-499	6.5	23.09	215	32,305	1,399	0.7
500-999	6.5	30.03	72	14,123	470	0.2
1,000-3,299	6.5	30.03	59	11,526	384	0.2
3,300-9,999	6.5	30.51	12	2,417	79	0.0
10,000-49,999	6	31.08	1	173	6	0.0
50,000-99,999	6	31.08	-	-	-	-
100,000-999,999	6	35.25	-	-	-	-
≥ 1 Million	6	35.25	-	-	-	-
National Totals			**505**	**$ 80,841**	**3,285**	**1.6**
TNCWSs						
<100	6.5	$ 21.44	785	$ 109,383	5,102	2.5
100-499	6.5	23.09	504	75,612	3,275	1.6
500-999	6.5	30.03	78	15,264	508	0.2
1,000-3,299	6.5	30.03	49	9,476	316	0.2
3,300-9,999	6.5	30.51	16	3,144	103	0.0
10,000-49,999	6	31.08	9	1,588	51	0.0
50,000-99,999	6	31.08	-	-	-	-
100,000-999,999	6	35.25	1	206	6	0.0
≥ 1 Million	6	35.25	-	-	-	-
National Totals			**1,441**	**$ 214,674**	**9,360**	**4.5**
Grand Totals			**6,930**	**$ 1,221,960**	**44,235**	**21.3**

Notes:
Detail may not add exactly to totals due to independent rounding.
Sources:
(A) Hours per plant reporting to the State/Primacy Agency for bin classification exemption and to report *E. coli* and *Cryptosporidium* monitoring data and bin classification. Assumes 15 minutes per sample. Based on 24 monthly *E. coli* and *Cryptosporidium* samples for medium and large systems and 26 biweekly *E. coli* and 24 semimonthly *Cryptosporidium* samples for small systems. Although small systems will not report *E. coli* and *Cryptosporidium* results at the same time, the additional reporting burden is assumed to be negligible. The decrease in burden for small plants that report *E. coli* but are exempt from *Cryptosporidium* monitoring is also assumed to be negligible.
(B) For plants serving up to 500 people, the full technical rate ($24.96/hour) was applied. For plants serving more than 500 people, costs are based on an 80%/20% split between technical and managerial ($44.91/hour) rates. Rates are based on Bureau of Labor Statistics data.
(C) Taken from "Baseline for Implementation and Monitoring Activities," column I.

Exhibit D.39 Burden and Cost to PWSs Associated with UCFWR Reporting

System Size (Population Served)	Reporting Use of UCFWR	Reporting Schedule for Covering UCFWR or Disinfecting UCFWR Effluent	Total Hours per PWS	Cost per Labor Hour	Baseline # of Systems with UCFWRs	Total Cost	Total Burden (Hours)	Total Burden (FTEs)
	A	B	C = A + B	D	E	F = C*D*E	G = C*E	H = G/2080
CWSs								
<100	0.25	8	8.25	$ 21.44	3	$ 531	25	0.01
100-499	0.25	8	8.25	23.09	-	-	-	-
500-999	0.25	8	8.25	30.03	-	-	-	-
1,000-3,299	0.25	8	8.25	30.03	-	-	-	-
3,300-9,999	0.25	8	8.25	30.51	9	2,266	74	0.04
10,000-49,999	0.25	8	8.25	31.08	26	6,667	215	0.10
50,000-99,999	0.25	8	8.25	31.08	5	1,282	41	0.02
100,000-999,999	0.25	8	8.25	35.25	37	10,759	305	0.15
1,000,000+	0.25	8	8.25	35.25	1	291	8	0.00
National Totals					**81**	**$ 21,795**	**668**	**0.3**

Notes:
Detail may not add exactly to totals due to rounding.
NTNCWS and TNCWS do not have UCFWRs
Sources:
(A & B) Burden estimates for each activity are based on EPA experience with similar rules.

(D) For systems serving up to 500 people, the full technical rate ($21.44/hour for <100 and $23.09 for 100-499) was applied. For systems serving more than 500 people, cost are based on an 80%/20% split between technical and managerial rates (range from $3
(E) Exhibit 4.23, Economic Analysis for the LT2ESWTR

Exhibit D.40 Burden and Cost to States and Primacy Agencies Associated with Reviewing/Approving UCFWR Schedule

State/Primacy Agency Activity	Baseline # of Systems with UCFWRs	Cost per Labor Hour	FTEs per UCFWR	Hours per UCFWR	Cost Per UCFWR
	A	B	C	D	E = B*D
Recording Use of UCFWR	81	$ 33.60	0.0001	0.25	$ 8.4
Approving State Schedule	81	$ 33.60	0.0005	1	$ 33.6
		Totals per UCFWR	**0.0006**	**1.25**	**$ 42.0**
		Burden and Cost per State/Primacy Agency	**0.01**	**14.46**	**$ 486.1**
		National Totals	**0.05**	**101.25**	**$ 3,402**

Notes:

Detail may not add to totals due to rounding.

Only the seven States/Primacy Agencies with UNFWRs are assumed to incur burden and costs for these activities.

1 FTE = 2,080 hours (40 hours/week; 52 weeks/year)

Sources:

(B) State labor rates based on the State Workload Model, updated to current dollar values.

(C) FTEs per State/Primacy Agency based on EPA experience with previous regulations.

Appendix E
Unit Costs for Technologies Considered in the Long Term 2 Enhanced Surface Water Treatment Rule

Exhibit 6.8 in Chapter 6 lists the treatment technologies, along with their constraints and design criteria, that were considered for plants treating surface water and surface water under the direct influence of ground water (GWUDI) to meet the LT2ESWTR. This appendix builds on information in Chapter 6 by presenting:

- Capital unit cost estimates for a wide range of design flows (in tabular and graphical forms); and

- Operation and maintenance (O&M) unit cost estimates for a wide range of average daily flows (in tabular and graphical forms).

The unit costs are derived from equations and other information in the *Technology and Cost Document for Control of Microbial Contaminants and Disinfection By-Products"* (T&C document) (USEPA 2003a), and are revised to incorporate recommendations from the National Drinking Water Advisory Council (NDWAC) Arsenic Cost Working Group (NDWAC 2001), and labor rates from *Labor Costs for National Drinking Water Rules* (USEPA, 2003b). Unit costs presented in this appendix are based on labor rates presented in Exhibit 6.2, and are in 2003$. The costs are given over a wide range of design flows, from 7,000 gallons per day to 520 million gallons per day (MGD). These are representative of the flow range water systems exhibit.

The T&C document provides costs at 16 flows covering the above range for each technology. However, the EA cost model initially uses nine size categories that do not match any of the 16 flows. Linear interpolation between each of the 16 points is used to generate unit costs for the nine size categories. If an EA size category correlated to a flow lower than the minimum flow in the T&C document, the cost at the minimum flow was used. If an EA size category exceeded the maximum flow, the costs were extrapolated linearly with the same slope as given between the highest two points.

The following table lists the exhibits in this appendix. Each exhibit lists the constraints and design criteria for the technology and presents a table showing the unit cost estimates for each design or average flow point. The graph displays each point connected by a line; the unit costs calculated for the EA cost model fall on these lines. All graphs are in log-log scale.

Appendix E Contents

Exhibit E.1

Capital Costs for Bag Filtration

Design Flow (mgd)	Capital Cost ($)
0.0001	$10,280
0.0070	$10,280
0.0220	$10,420
0.0370	$12,828
0.0910	$13,320
0.1800	$19,487
0.2700	$23,424
0.3600	$28,771
0.6800	$42,479
1.0000	$65,653
1.2000	$75,011
2.0000	$136,788
3.5000	Data Not Used
7.0000	Data Not Used
17.0000	Data Not Used
22.0000	Data Not Used
76.0000	Data Not Used
210.0000	Data Not Used
430.0000	Data Not Used
520.0000	Data Not Used
1,500.0000	Data Not Used

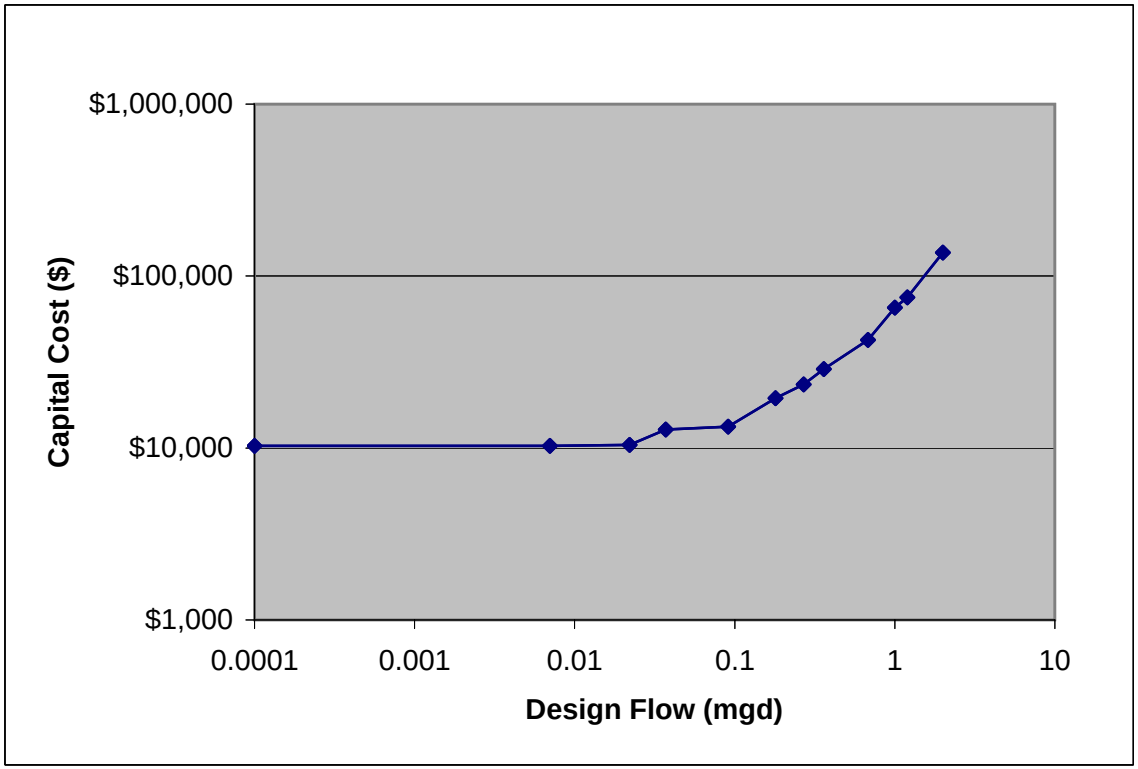


Exhibit E.2

O&M Costs for Bag Filtration

Average Flow (mgd)	O&M Cost ($)
0.00005	$479
0.00150	$479
0.00540	$481
0.00950	$701
0.02500	$732
0.05400	$962
0.08400	$1,223
0.11000	$1,673
0.23000	$2,602
0.35000	$3,956
0.41000	$4,851
0.77000	$8,151
1.40000	Data Not Used
3.00000	Data Not Used
7.80000	Data Not Used
11.00000	Data Not Used
38.00000	Data Not Used
120.00000	Data Not Used
270.00000	Data Not Used
350.00000	Data Not Used
750.00000	Data Not Used

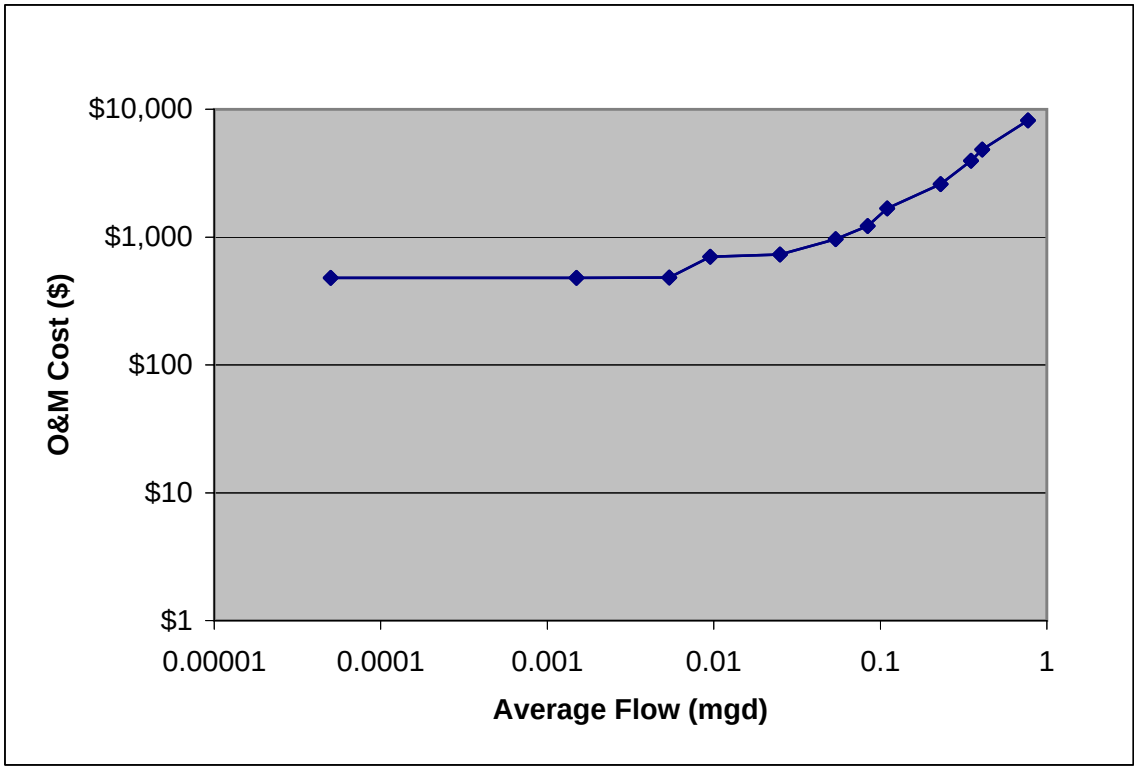


Exhibit E.3

Capital Costs for Cartridge Filtration

Design Flow (mgd)	Capital Cost ($)
0.0001	$10,465
0.0070	$10,465
0.0220	$10,605
0.0370	$13,196
0.0910	$17,256
0.1800	$24,024
0.2700	$31,479
0.3600	$43,699
0.6800	$73,535
1.0000	$111,151
1.2000	$136,393
2.0000	$265,089
3.5000	Data Not Used
7.0000	Data Not Used
17.0000	Data Not Used
22.0000	Data Not Used
76.0000	Data Not Used
210.0000	Data Not Used
430.0000	Data Not Used
520.0000	Data Not Used
1,500.0000	Data Not Used

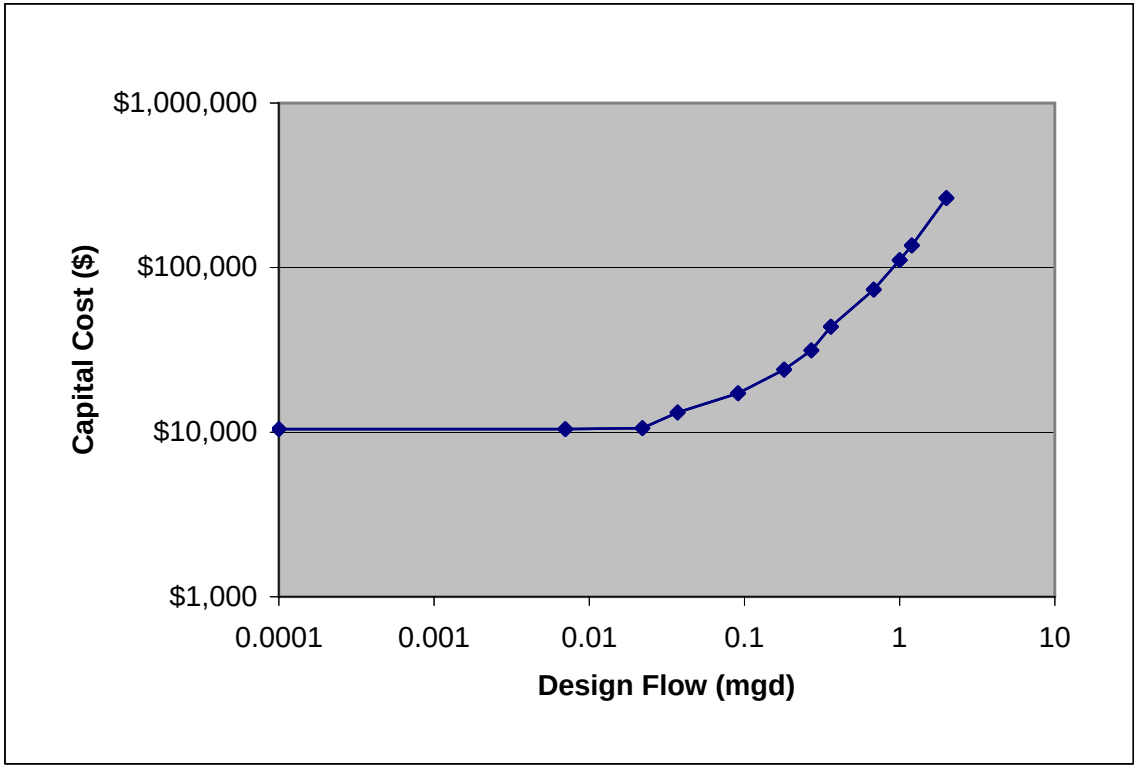


Exhibit E.4

O&M Costs for Cartrige Filtration

Average Flow (mgd)	O&M Cost ($)
0.00005	$680
0.00150	$680
0.00540	$682
0.00950	$1,099
0.02500	$1,465
0.05400	$2,808
0.08400	$4,596
0.11000	$5,621
0.23000	$9,821
0.35000	$14,315
0.41000	$18,075
0.77000	$28,189
1.40000	Data Not Used
3.00000	Data Not Used
7.80000	Data Not Used
11.00000	Data Not Used
38.00000	Data Not Used
120.00000	Data Not Used
270.00000	Data Not Used
350.00000	Data Not Used
750.00000	Data Not Used

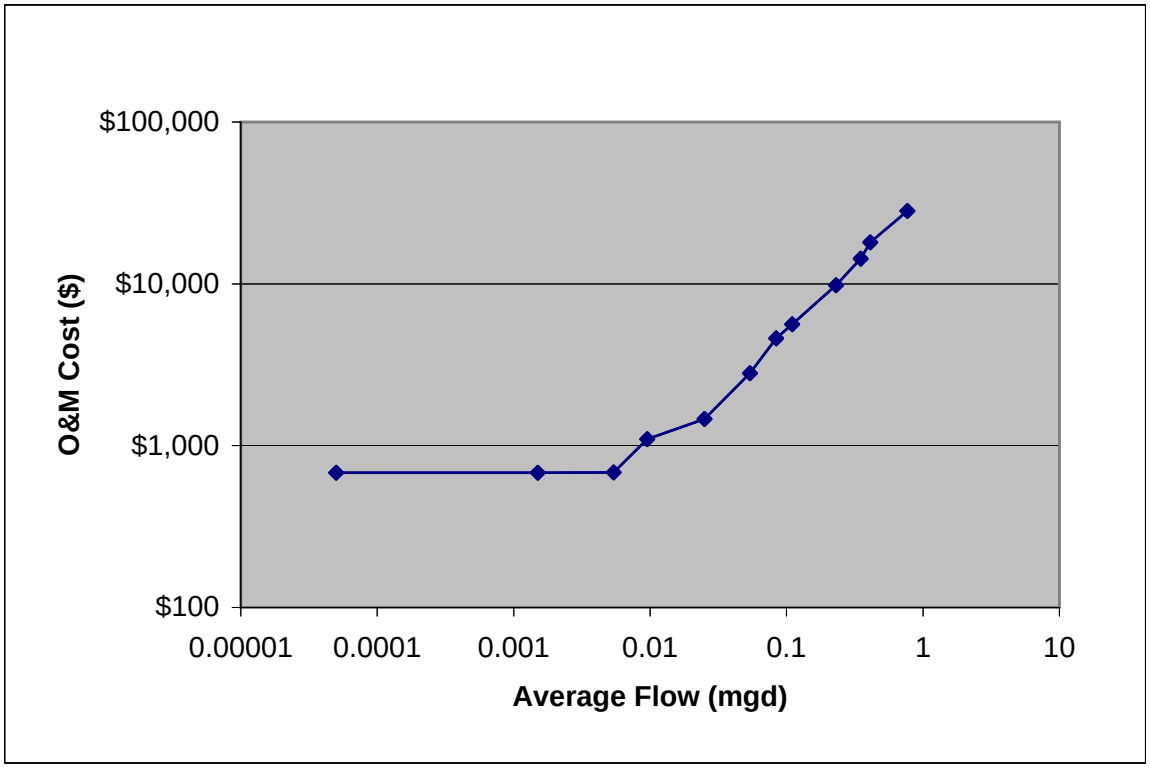


Exhibit E.5

Capital Costs for Chlorine Dioxide

Design Flow (mgd)	Capital Cost ($)
0.0001	Data Not Used
0.0070	Data Not Used
0.0220	Data Not Used
0.0370	Data Not Used
0.0910	$32,427
0.1800	$38,370
0.2700	$39,172
0.3600	$40,066
0.6800	$43,005
1.0000	$40,035
1.2000	$80,585
2.0000	$82,054
3.5000	$191,088
7.0000	$211,473
17.0000	$268,223
22.0000	$296,568
76.0000	$603,425
210.0000	$897,449
430.0000	$1,245,987
520.0000	$1,368,982
1,500.0000	$2,708,268

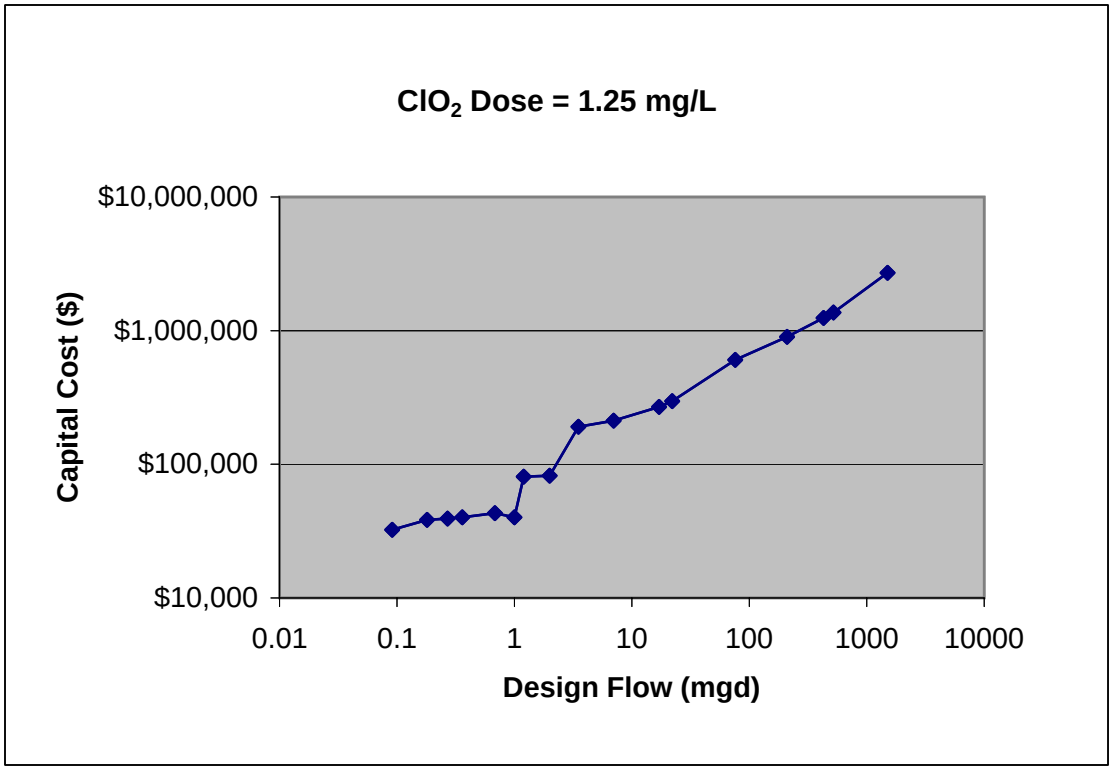


Exhibit E.6

O&M Costs for Chlorine Dioxide

Average Flow (mgd)	O&M Cost ($)
0.00005	Data Not Used
0.00150	Data Not Used
0.00540	Data Not Used
0.00950	Data Not Used
0.02500	$14,093
0.05400	$15,204
0.08400	$16,721
0.11000	$16,999
0.23000	$17,812
0.35000	$18,571
0.41000	$18,984
0.77000	$21,638
1.40000	$22,001
3.00000	$25,392
7.80000	$35,939
11.00000	$42,336
38.00000	$87,061
120.00000	$216,813
270.00000	$446,533
350.00000	$561,934
750.00000	$1,138,937

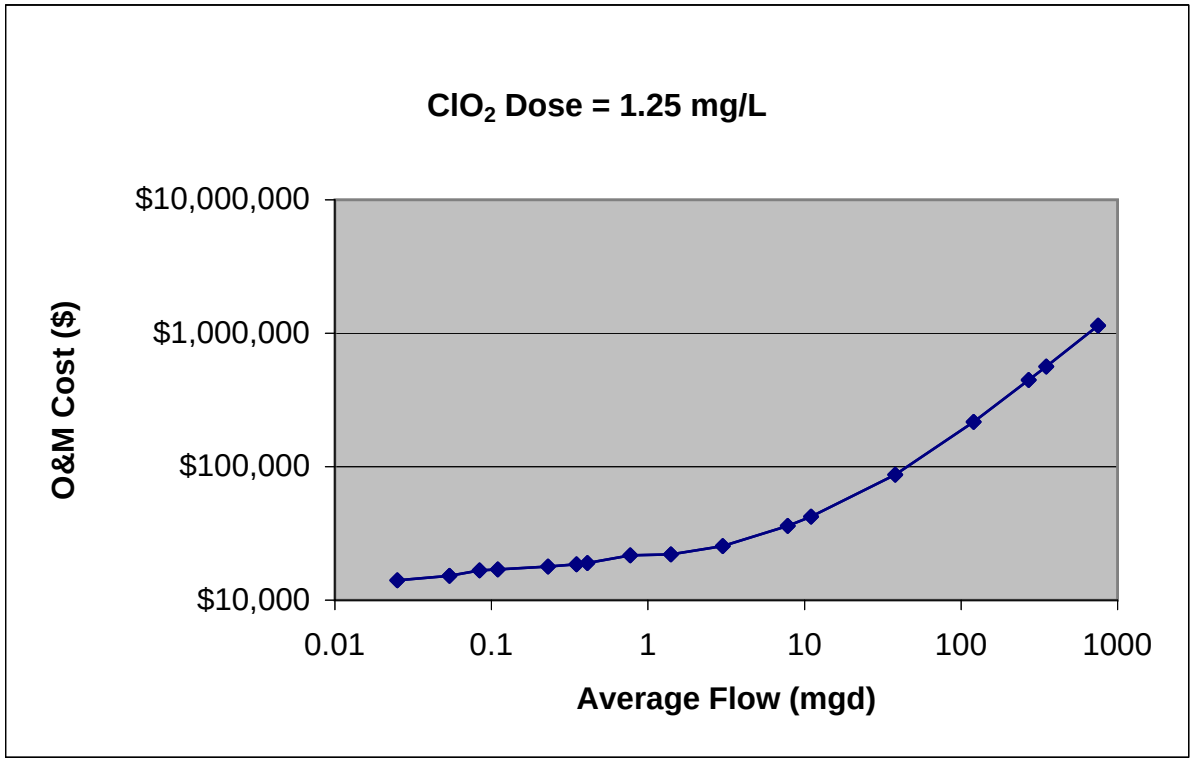


Exhibit E.7

Capital Costs for Combined Filter Performance

Design Flow (mgd)	Capital Cost ($)
0.0001	Data Not Used
0.0070	Data Not Used
0.0220	Data Not Used
0.0370	Data Not Used
0.0910	Data Not Used
0.1800	$9,986
0.2500	$17,840
0.3600	$19,764
0.6300	$24,486
1.0000	$30,133
1.2000	$33,186
1.8100	$42,497
3.5000	$58,321
6.9000	$90,156
17.0000	$136,850
19.8700	$150,119
77.5000	$653,715
210.0000	$1,069,457
430.0000	$1,759,746
575.4100	$2,215,996
1,500.0000	$5,117,060

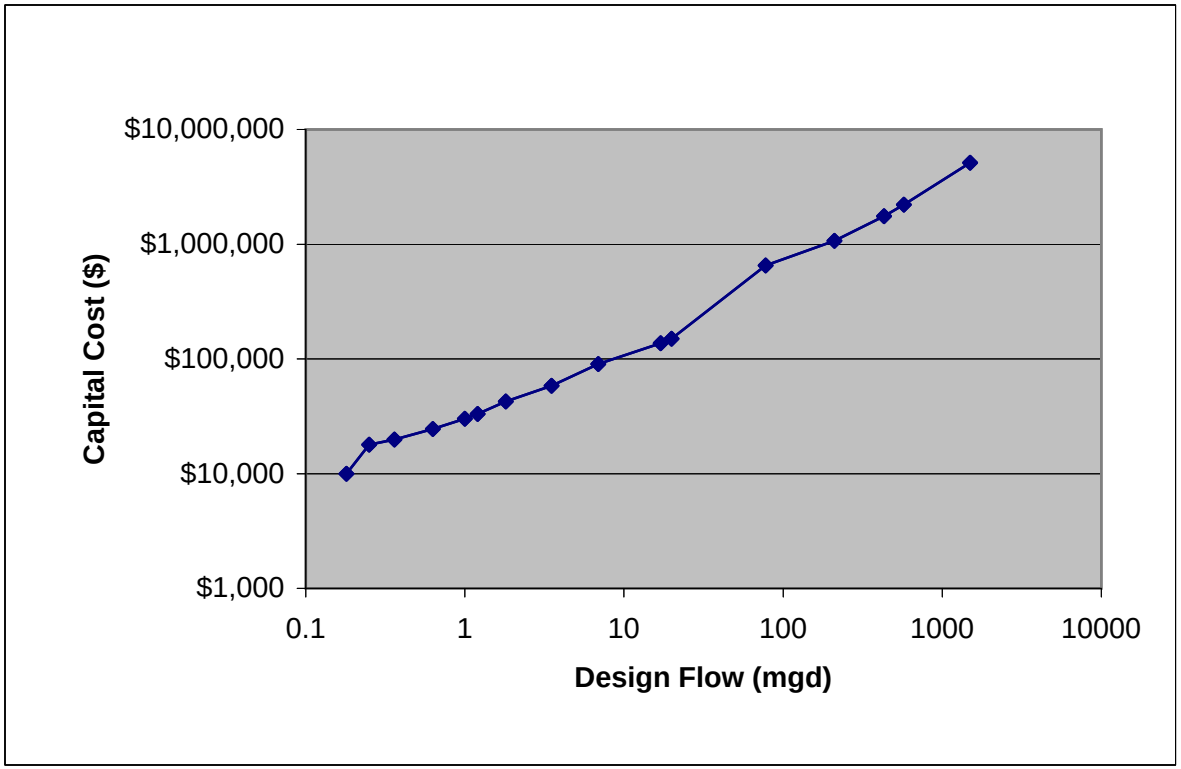


Exhibit E.8

O&M Costs for Combined Filter Performance

Average Flow (mgd)	O&M Cost ($)
0.00005	Data Not Used
0.00150	Data Not Used
0.00540	Data Not Used
0.00950	Data Not Used
0.02500	Data Not Used
0.05400	$7,090
0.09300	$16,626
0.11000	$16,698
0.25000	$17,295
0.35000	$20,227
0.41000	$21,986
0.75000	$31,954
1.40000	$33,036
3.00000	$35,702
7.80000	$58,854
9.10000	$65,124
37.90000	$133,775
120.00000	$161,628
270.00000	$212,517
307.00000	$225,069
750.00000	$375,359

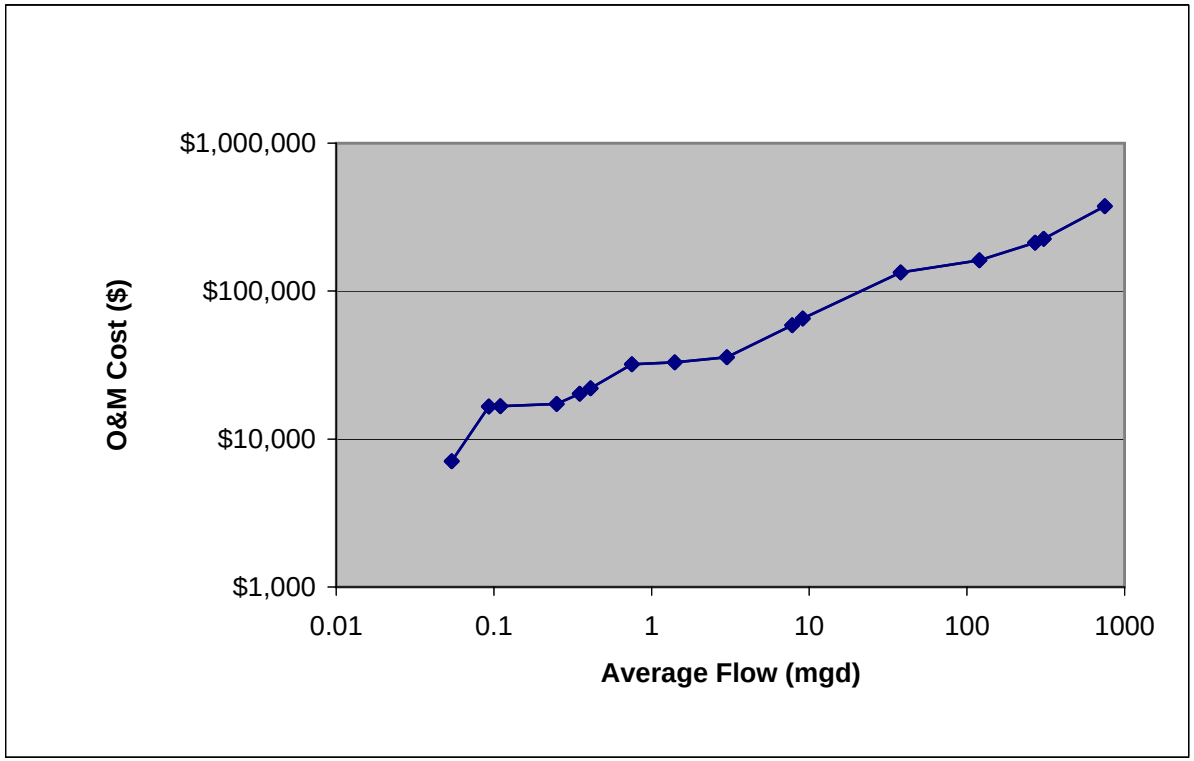


Exhibit E.9

Capital Costs for In-Bank Filtration

Design Flow (mgd)	Capital Cost ($)
0.0001	$150,000
0.0070	$150,000
0.0220	$150,000
0.0370	$150,000
0.0910	$150,000
0.1800	$150,000
0.2700	$150,000
0.3600	$150,000
0.6800	$150,000
1.0000	$224,684
1.2000	$271,361
2.0000	$458,070
3.5000	$808,149
7.0000	$1,625,000
17.0000	$3,382,246
22.0000	$4,260,870
76.0000	$13,750,000
210.0000	$37,297,101
430.0000	$75,956,522
520.0000	$91,771,739
1,500.0000	$263,981,884

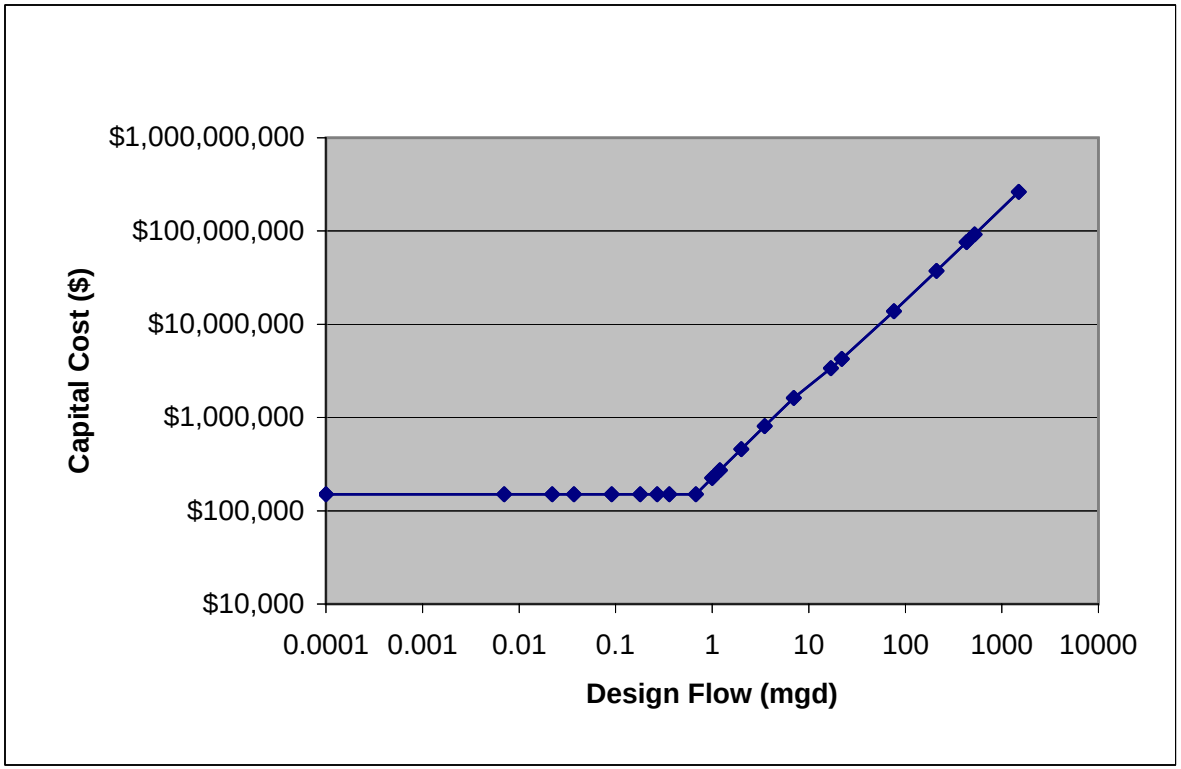


Exhibit E.10

Capital Costs for Membrane Filtration (MF/UF)

Design Flow (mgd)	Capital Cost ($)
0.0001	$131,478
0.0070	$131,478
0.0220	$214,432
0.0370	$270,819
0.0910	$409,983
0.1800	$628,117
0.2700	$748,563
0.3600	$850,970
0.6800	$1,133,988
1.0000	$1,594,911
1.2000	$1,738,505
2.0000	$2,720,593
3.5000	$4,142,559
7.0000	$7,382,351
17.0000	$15,991,348
22.0000	$20,058,196
76.0000	$61,150,358
210.0000	$153,184,031
430.0000	$293,759,889
520.0000	$349,252,221
1,500.0000	$953,502,064

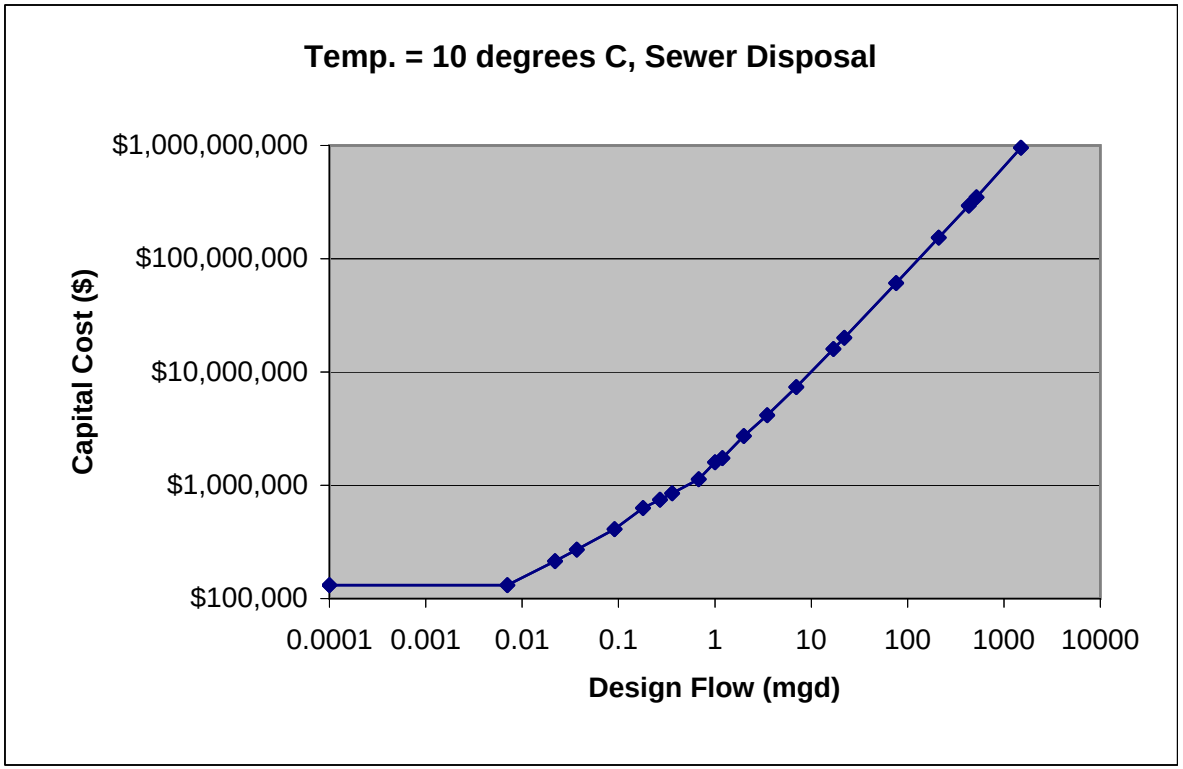


Exhibit E.11

O&M Costs for Membrane Filtration (MF/UF)

Average Flow (mgd)	O&M Cost ($)
0.00005	$6,230
0.0015	$6,230
0.0054	$6,686
0.0095	$7,156
0.0250	$9,329
0.0540	$22,042
0.0840	$26,348
0.1100	$29,272
0.2300	$41,522
0.3500	$69,214
0.4100	$75,317
0.7700	$106,798
1.4000	$164,173
3.0000	$324,393
7.8000	$786,427
11.0000	$1,034,793
38.0000	$3,301,730
120.0000	$9,888,387
270.0000	$21,519,157
350.0000	$27,300,426
750.0000	$56,206,770

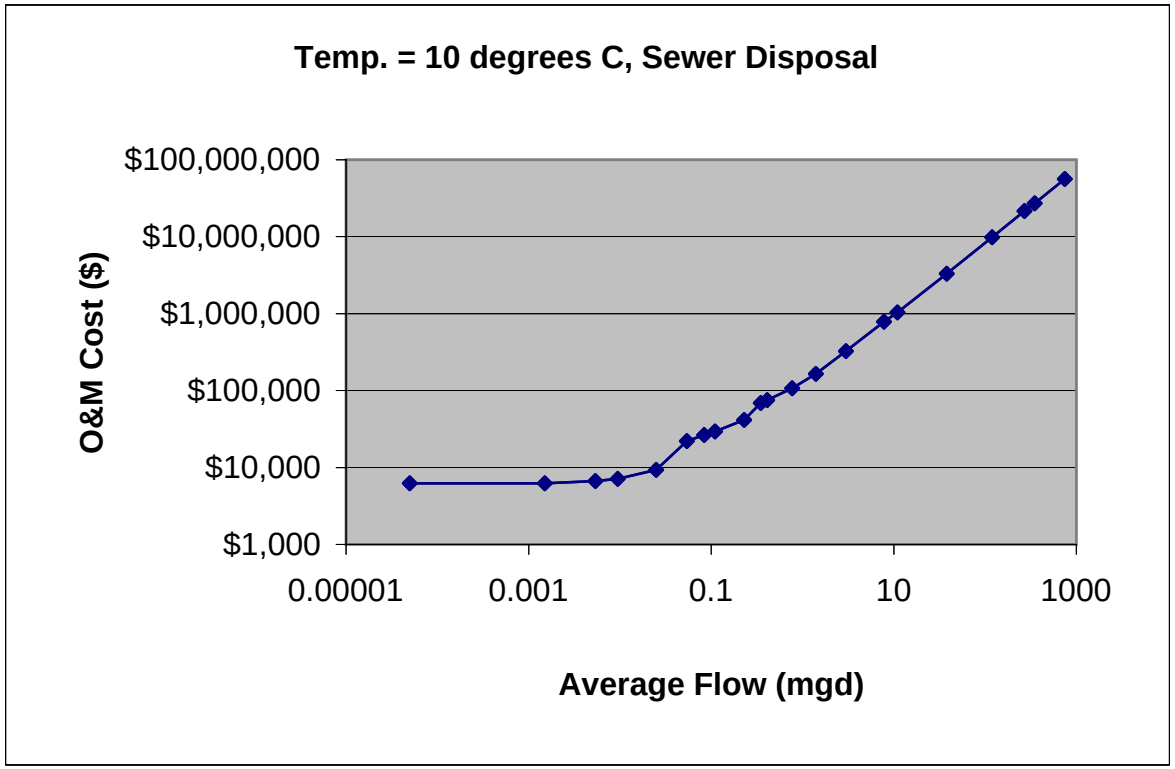


Exhibit E.12

Capital Costs for Ozone
0.5 Log Inactivation of *Cryptosporidium*

Design Flow (mgd)	Capital Cost ($)
0.0001	Data Not Used
0.0070	Data Not Used
0.0220	Data Not Used
0.0370	Data Not Used
0.0910	$322,787
0.1800	$382,874
0.2700	$438,785
0.3600	$493,394
0.6800	$675,951
1.0000	$804,614
1.2000	$902,391
2.0000	$1,226,541
3.5000	$1,595,373
7.0000	$2,357,412
17.0000	$3,946,957
22.0000	$4,546,365
76.0000	$12,628,950
210.0000	$26,317,852
430.0000	$44,918,178
520.0000	$53,248,978
1,500.0000	$143,962,124

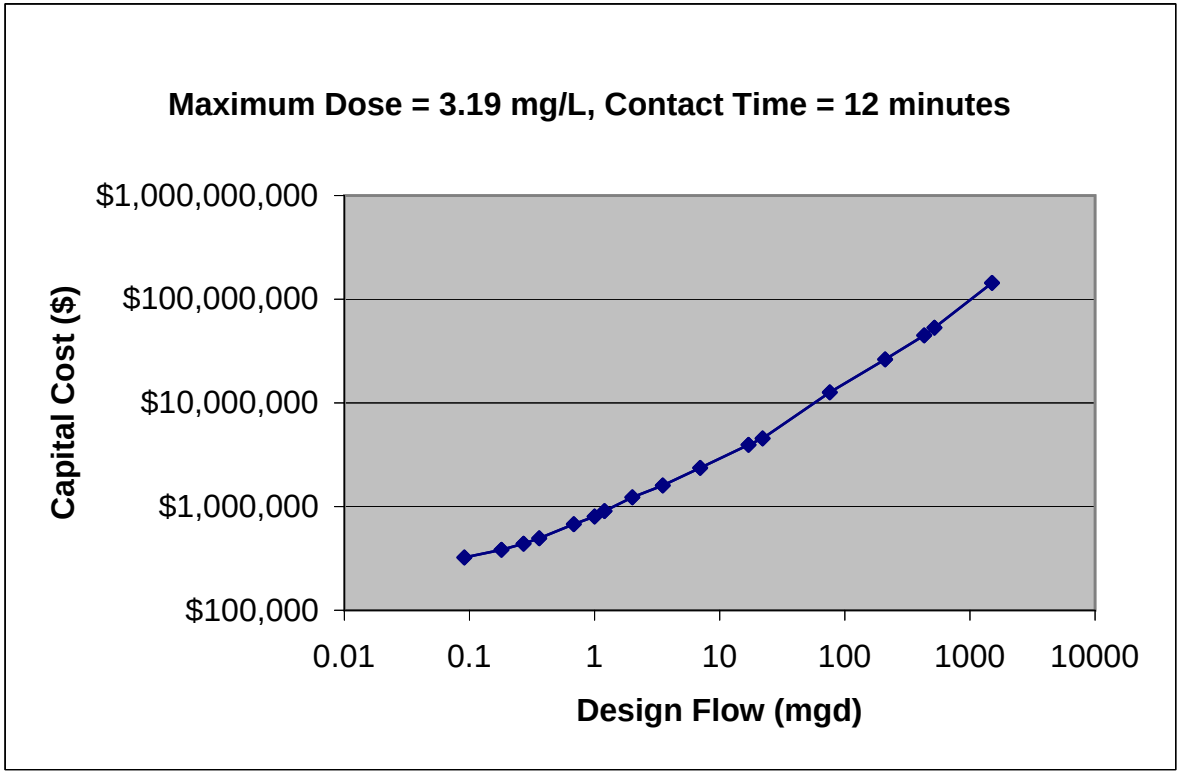


Exhibit E.13

O&M Costs for Ozone
0.5 Log Inactivation of *Cryptosporidium*

Average Flow (mgd)	O&M Cost ($)
0.00005	Data Not Used
0.00150	Data Not Used
0.00540	Data Not Used
0.00950	Data Not Used
0.02500	$55,520
0.05400	$55,884
0.08400	$59,391
0.11000	$59,737
0.23000	$61,152
0.35000	$62,566
0.41000	$63,350
0.77000	$67,621
1.40000	$77,719
3.00000	$95,346
7.80000	$145,700
11.00000	$177,752
38.00000	$464,832
120.00000	$1,377,320
270.00000	$2,871,997
350.00000	$3,662,456
750.00000	$7,614,752

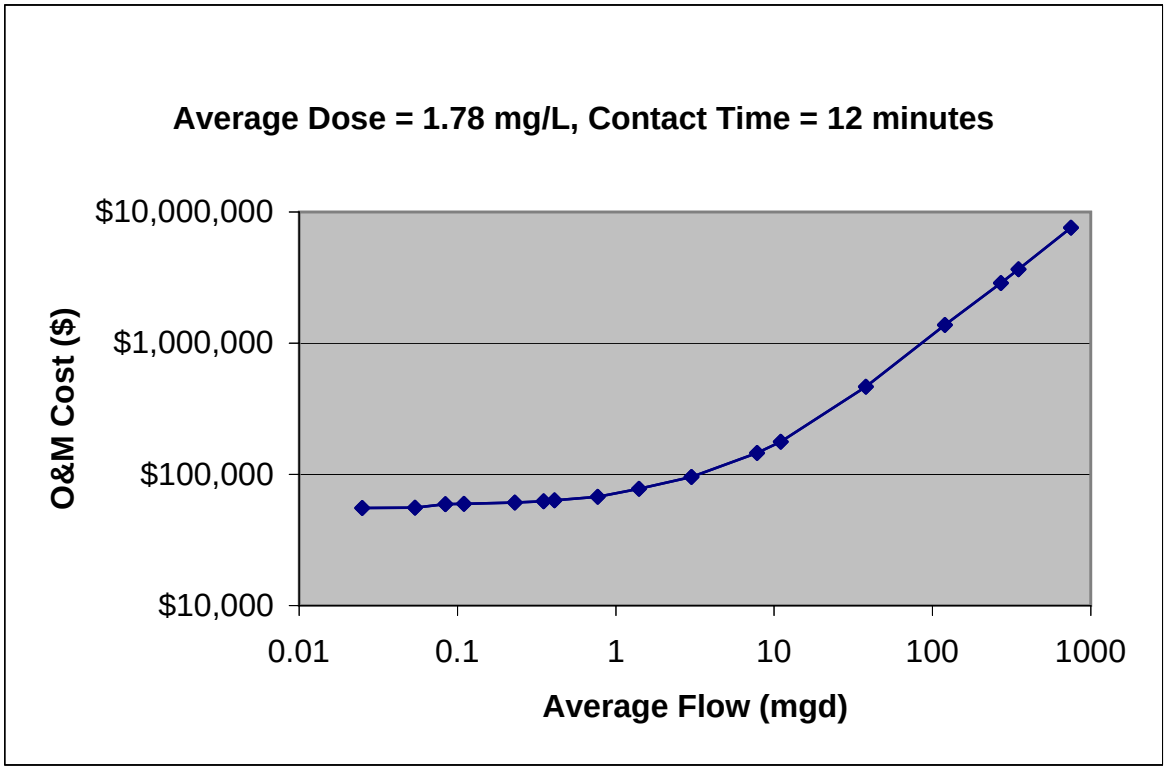


Exhibit E.14

Capital Costs for Ozone
1.0 Log Inactivation of *Cryptosporidium*

Design Flow (mgd)	Capital Cost ($)
0.0001	Data Not Used
0.0070	Data Not Used
0.0220	Data Not Used
0.0370	Data Not Used
0.0910	$351,943
0.1800	$440,546
0.2700	$525,292
0.3600	$608,737
0.6800	$893,979
1.0000	$1,043,133
1.2000	$1,119,608
2.0000	$1,416,784
3.5000	$1,922,483
7.0000	$2,912,264
17.0000	$4,697,222
22.0000	$5,517,296
76.0000	$15,011,417
210.0000	$30,378,296
430.0000	$55,716,052
520.0000	$66,369,920
1,500.0000	$182,378,707

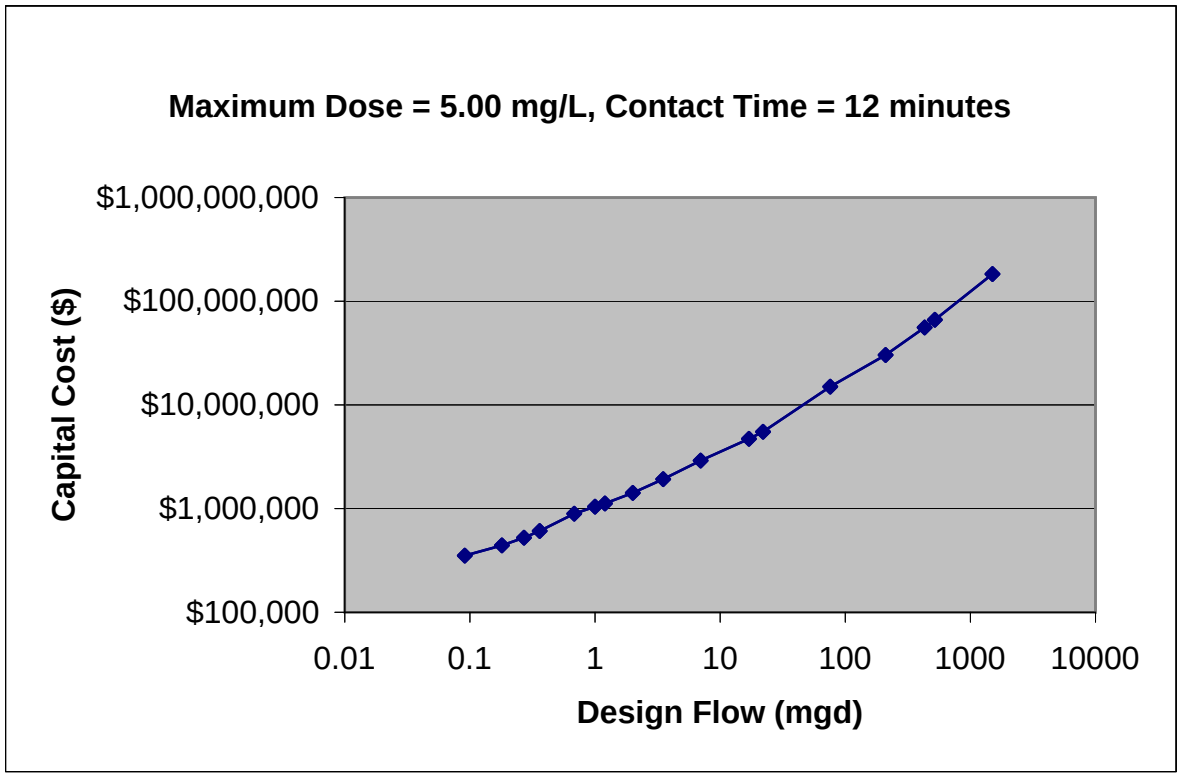


Exhibit E.15

O&M Costs for Ozone
1.0 Log Inactivation of *Cryptosporidium*

Average Flow (mgd)	O&M Cost ($)
0.00005	Data Not Used
0.00150	Data Not Used
0.00540	Data Not Used
0.00950	Data Not Used
0.02500	$55,827
0.05400	$56,438
0.08400	$60,197
0.11000	$60,781
0.23000	$63,138
0.35000	$65,357
0.41000	$66,210
0.77000	$75,885
1.40000	$87,731
3.00000	$115,823
7.80000	$194,432
11.00000	$245,991
38.00000	$694,758
120.00000	$2,083,382
270.00000	$4,473,882
350.00000	$5,734,314
750.00000	$12,036,475

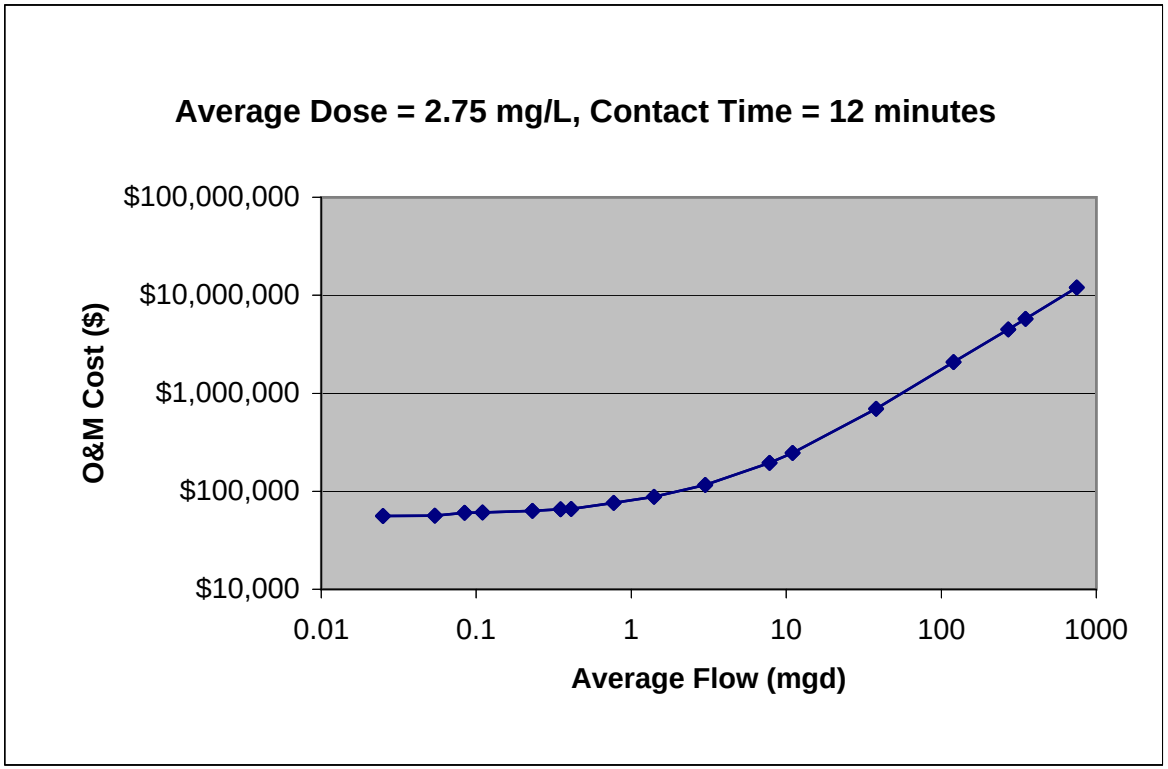


Exhibit E.16

Capital Costs for Ozone
2.0 Log Inactivation of *Cryptosporidium*

Design Flow (mgd)	Capital Cost ($)
0.0001	Data Not Used
0.0070	Data Not Used
0.0220	Data Not Used
0.0370	Data Not Used
0.0910	$372,391
0.1800	$480,993
0.2700	$585,963
0.3600	$689,631
0.6800	$1,069,196
1.0000	$1,107,713
1.2000	$1,200,916
2.0000	$1,547,877
3.5000	$2,151,897
7.0000	$3,124,381
17.0000	$5,223,408
22.0000	$6,291,141
76.0000	$16,720,757
210.0000	$34,225,903
430.0000	$63,362,091
520.0000	$75,616,293
1,500.0000	$209,050,936

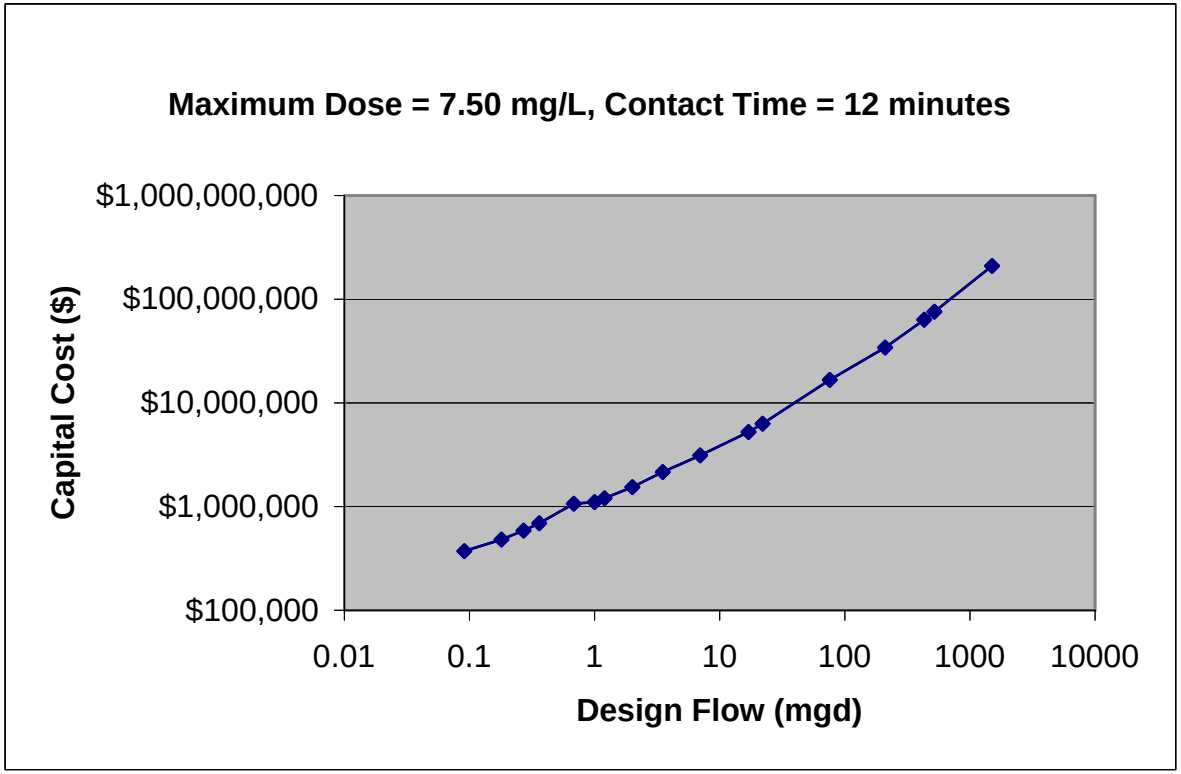


Exhibit E.17

O&M Costs for Ozone
2.0 Log Inactivation of *Cryptosporidium*

Average Flow (mgd)	O&M Cost ($)
0.00005	Data Not Used
0.00150	Data Not Used
0.00540	Data Not Used
0.00950	Data Not Used
0.02500	$56,096
0.05400	$56,900
0.08400	$60,858
0.11000	$61,627
0.23000	$64,836
0.35000	$66,956
0.41000	$68,079
0.77000	$74,291
1.40000	$85,473
3.00000	$211,156
7.80000	$424,479
11.00000	$541,290
38.00000	$1,710,724
120.00000	$4,846,200
270.00000	$10,067,081
350.00000	$12,436,352
750.00000	$24,282,705

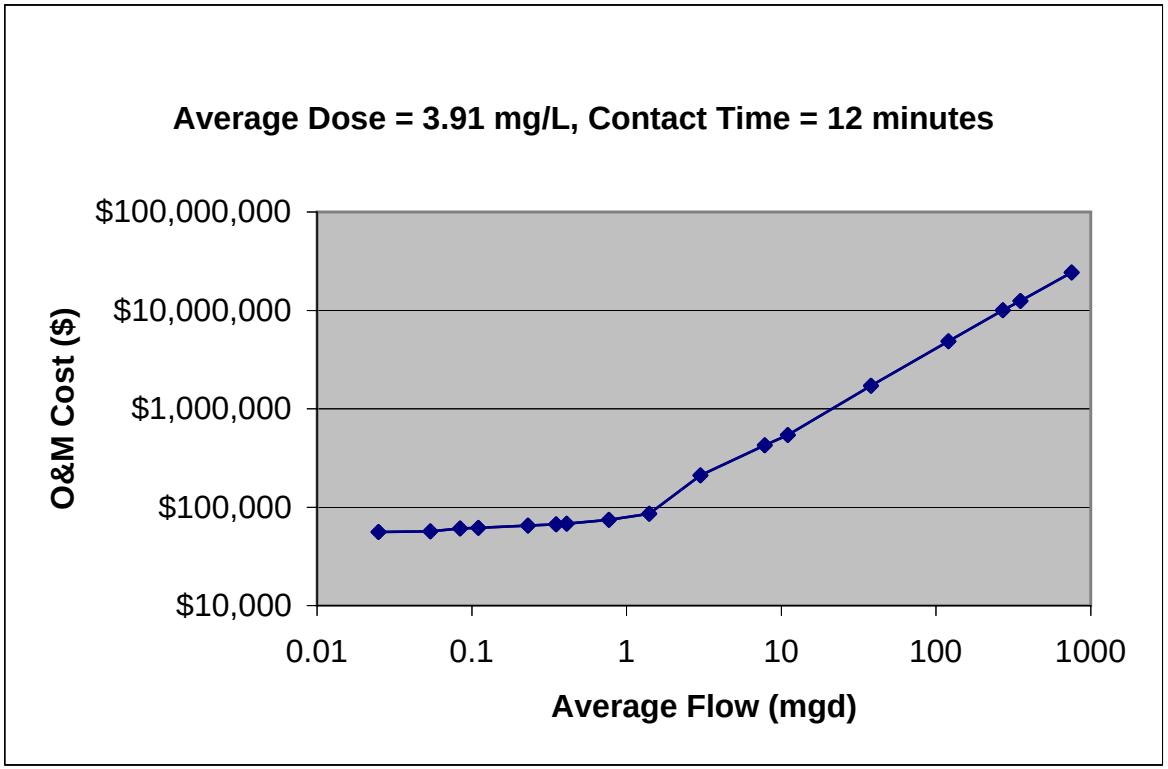


Exhibit E.18

Capital Costs for Secondary Filters

Design Flow (mgd)	Capital Cost ($)
0.0001	$1,106,000
0.0070	$1,106,000
0.0220	$1,106,000
0.0370	$1,106,000
0.0910	$1,106,000
0.1800	$1,106,000
0.2700	$1,106,000
0.3600	$1,106,000
0.6800	$1,106,000
1.0000	$1,331,013
1.2000	$1,471,646
2.0000	$2,034,177
3.5000	$3,088,924
7.0000	$5,550,000
17.0000	$7,731,159
22.0000	$8,821,739
76.0000	$20,600,000
210.0000	$49,827,536
430.0000	$97,813,043
520.0000	$117,443,478
1,500.0000	$331,197,101

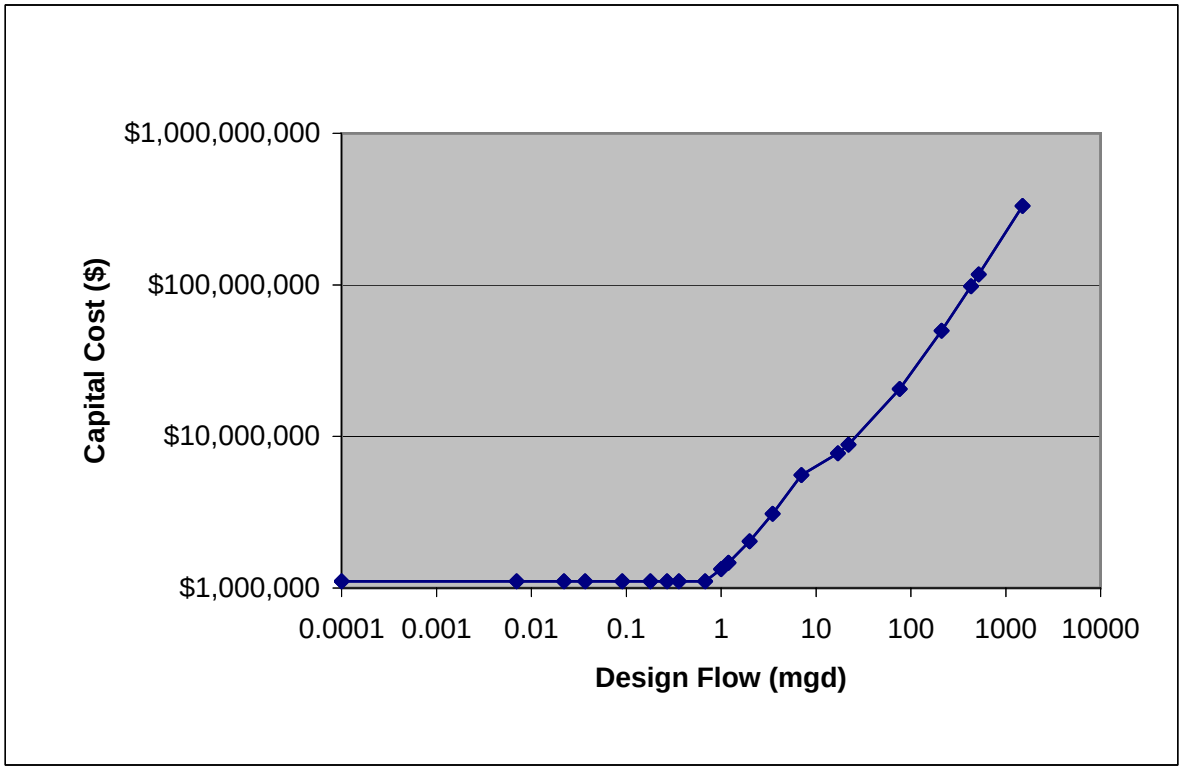


Exhibit E.19

O&M Costs for Secondary Filters

Average Flow (mgd)	O&M Cost ($)
0.00005	$62,300
0.00150	$62,300
0.00540	$62,300
0.00950	$62,300
0.02500	$62,300
0.05400	$62,300
0.08400	$62,300
0.11000	$62,300
0.23000	$62,300
0.35000	$66,034
0.41000	$67,901
0.77000	$79,104
1.40000	$98,709
3.00000	$148,500
7.80000	$182,031
11.00000	$204,386
38.00000	$393,000
120.00000	$965,829
270.00000	$2,013,686
350.00000	$2,572,543
750.00000	$5,366,829

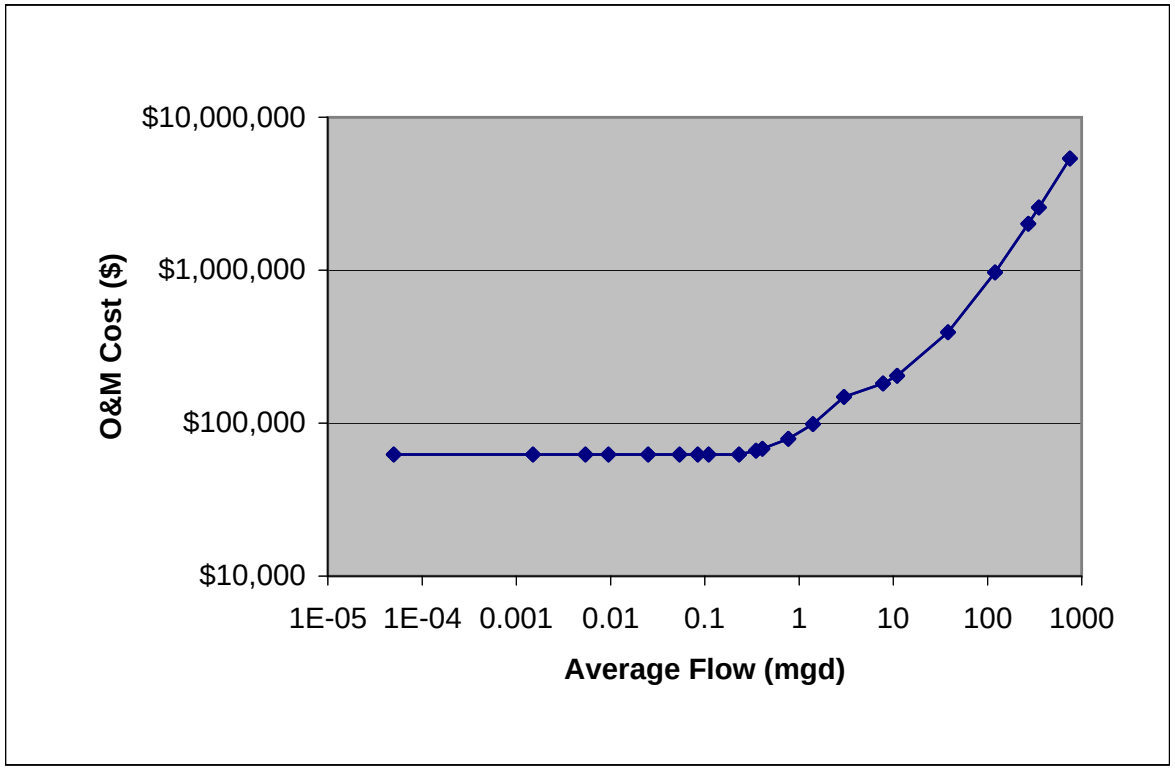


Exhibit E.20

Capital Costs for UV

Design Flow (mgd)	Capital Cost ($)
0.0001	$10,195
0.0070	$10,195
0.0220	$13,034
0.0370	$15,834
0.0910	$25,596
0.1800	$40,597
0.2700	$54,386
0.3600	$66,790
0.6800	$99,661
1.0000	$310,154
1.2000	$313,662
2.0000	$333,331
3.5000	$362,965
7.0000	$544,728
17.0000	$1,342,022
22.0000	$1,933,041
76.0000	$3,367,751
210.0000	$8,074,450
430.0000	$15,798,603
520.0000	$18,601,681
1,500.0000	$49,124,085

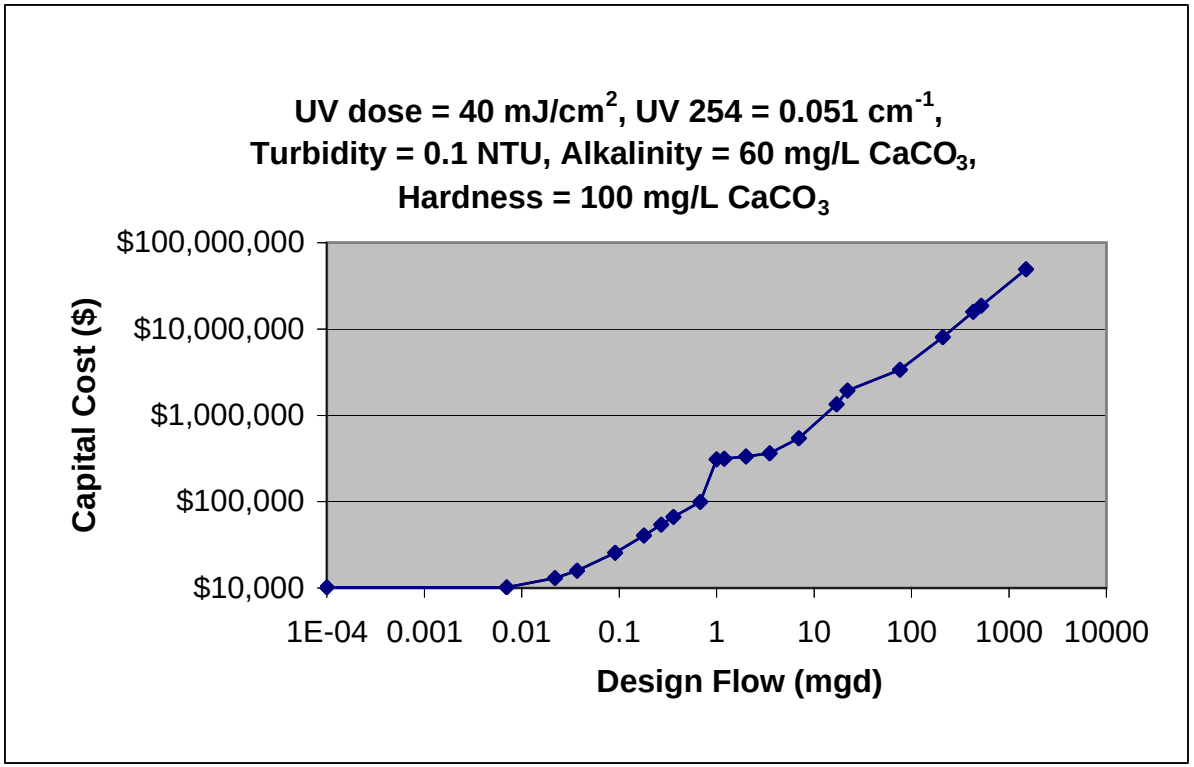


Exhibit E.21

O&M Costs for UV

Average Flow (mgd)	O&M Cost ($)
0.00005	$3,350
0.00150	$3,350
0.00540	$3,380
0.00950	$3,769
0.02500	$4,549
0.05400	$4,736
0.08400	$6,115
0.11000	$6,493
0.23000	$8,152
0.35000	$9,016
0.41000	$9,450
0.77000	$11,512
1.40000	$13,979
3.00000	$16,183
7.80000	$22,908
11.00000	$27,531
38.00000	$66,755
120.00000	$188,219
270.00000	$422,455
350.00000	$551,123
750.00000	$1,194,464

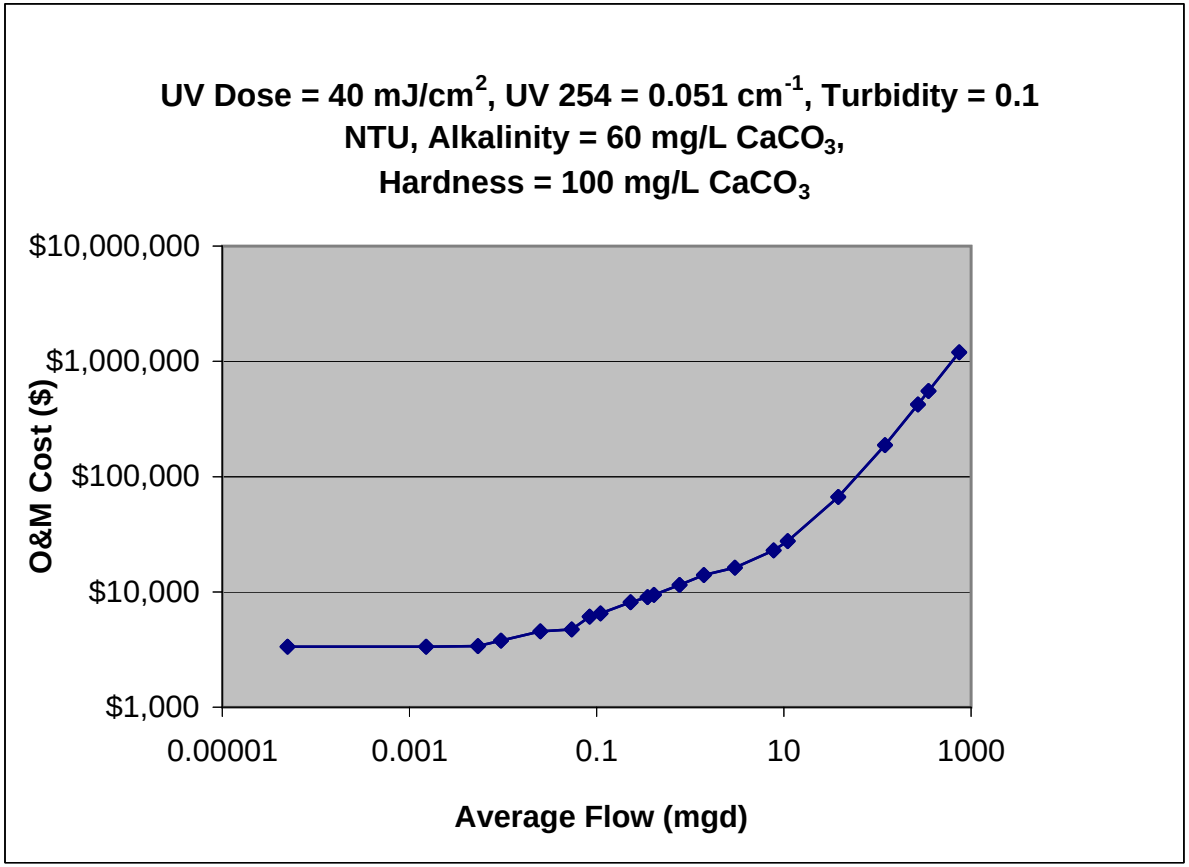


Exhibit E.22

Capital Costs for Watershed Control

Design Flow (mgd)	Capital Cost ($)
0.0001	$250,000
0.0070	$250,000
0.0220	$250,000
0.0370	$250,000
0.0910	$250,000
0.1800	$250,000
0.2700	$250,000
0.3600	$250,000
0.6800	$250,000
1.0000	$262,658
1.2000	$270,570
2.0000	$302,215
3.5000	$361,551
7.0000	$500,000
17.0000	$572,464
22.0000	$608,696
76.0000	$1,000,000
210.0000	$1,971,014
430.0000	$3,565,217
520.0000	$4,217,391
1,500.0000	$11,318,841

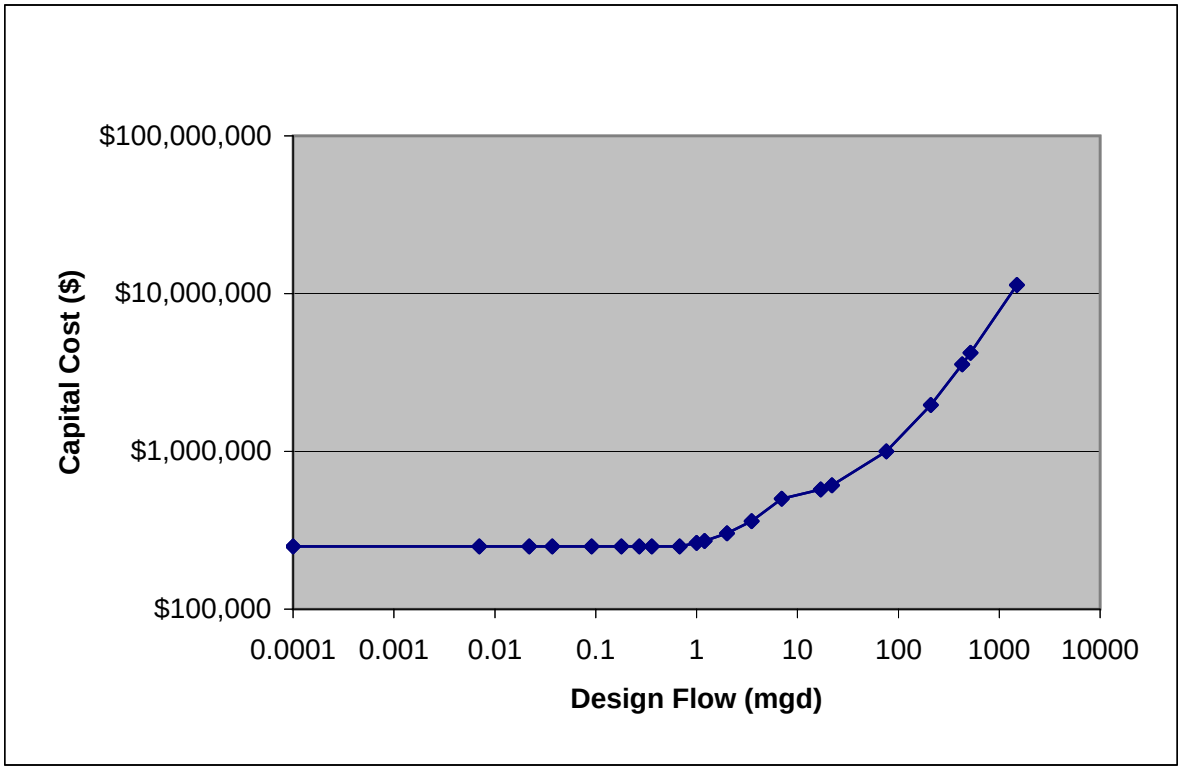
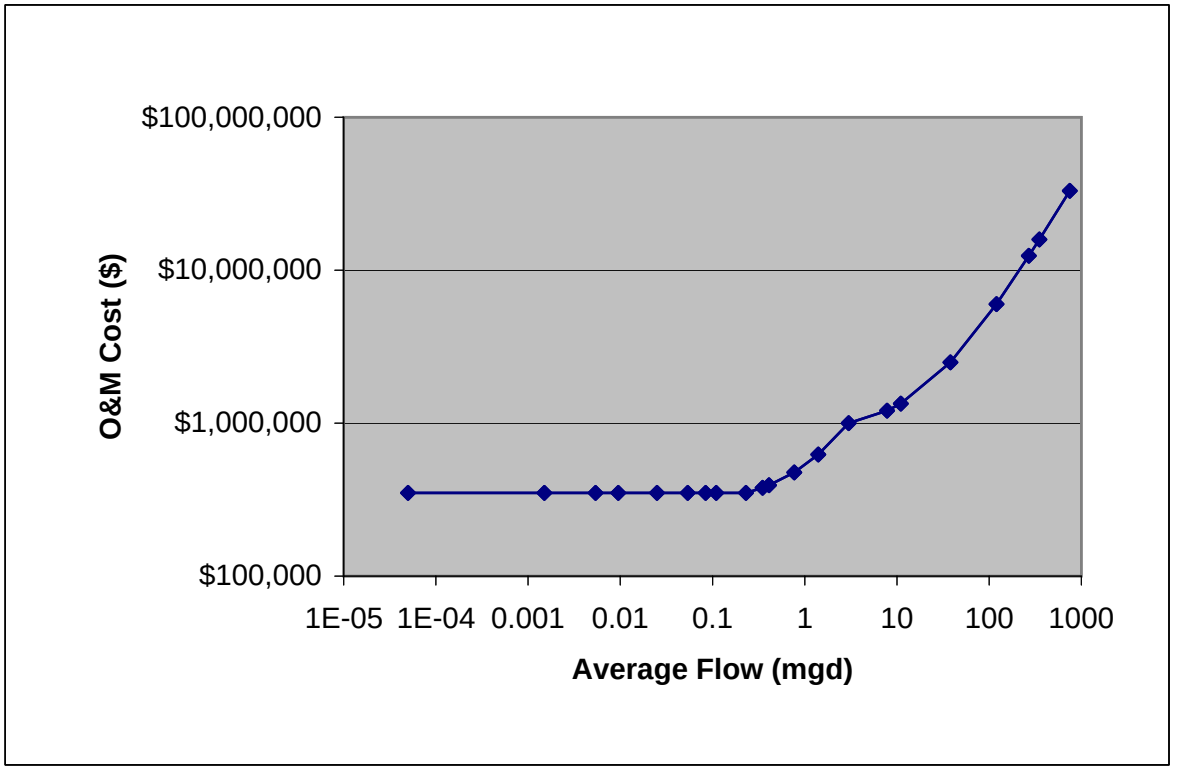


Exhibit E.23

O&M Costs for Watershed Control

Average Flow (mgd)	O&M Cost ($)
0.00005	$350,000
0.00150	$350,000
0.00540	$350,000
0.00950	$350,000
0.02500	$350,000
0.05400	$350,000
0.08400	$350,000
0.11000	$350,000
0.23000	$350,000
0.35000	$378,159
0.41000	$392,238
0.77000	$476,715
1.40000	$624,549
3.00000	$1,000,000
7.80000	$1,205,714
11.00000	$1,342,857
38.00000	$2,500,000
120.00000	$6,014,286
270.00000	$12,442,857
350.00000	$15,871,429
750.00000	$33,014,286



Appendix F
Technology Selection Forecast Methodology

F.1 Introduction

This appendix describes the methodology used in estimating the technologies that plants are most likely to select to meet the requirements of the LT2ESWTR. This estimate is known as the technology selection forecast. Separate technology selection forecasts are developed for filtered plants, unfiltered plants, and uncovered finished water reservoirs. This appendix specifically deals with the technology selection forecasts for filtered plants. Technology selections for unfiltered plants and uncovered finished water reservoirs are more straightforward and are summarized in Chapter 6. The remainder of this appendix is organized as follows:

F.2 Binning Categories Used for Technology Selection

The technology selection forecast for filtered surface water and GWUDI plants depends on *Cryptosporidium* reduction requirements. The reduction required under the LT2ESWTR is a function of each plant's source water *Cryptosporidium* monitoring results and consequent bin classification. Treatment requirements for each bin are summarized in Chapter 2 of this EA. In addition to the three action bins laid out by the regulation, two other bins are created for purposes of the technology selection analysis. These bins take into account the 0.5 log credit plants can get for existing combined filter performance (0.15 NTU filtered water turbidity 95 percent of the time) or other toolbox options which are currently operating. A more detailed discussion of this binning is included in Chapter 4 and Appendix B.

F.3 Technologies Available to Meet Bin Requirements

The LT2ESWTR employs a toolbox approach for meeting action bin requirements. The "microbial toolbox" contains various *Cryptosporidium* reduction strategies for which plants can receive "credit" (or a range of credit) to meet treatment requirements for a given bin. Components of the microbial toolbox cover a wide array of management strategies including watershed control, selecting an alternative source, pretreatment, improved treatment, improved disinfection, peer review, and other plant demonstration strategies. Exhibit 2.2 in Chapter 2 lists each toolbox component and its corresponding log credit or range of log credits.

Many toolbox components, such as peer review and selecting an alternative source, are not included in this technology selection forecast because of the lack of data on appropriate cost and percent usage by plants. Also, some technologies are not considered feasible for small and very small systems because of operational constraints. Technologies may be selected alone or in combination to achieve the required log credit. The log credits are based on the minimum removal that the technology is expected to

achieve with proper design and implementation. Systems could potentially receive higher log credits through performance demonstration studies.

Exhibits F.3 through F.34 summarize the percent of filtered plants selecting each technology according to system size and whether the plant has Pre-LT2 credit (described in Appendix A). These exhibits present outputs from the cost model. Technologies are listed according to abbreviations shown in Exhibit F.1.

Exhibit F.1: Technologies Evaluated for this EA

Technology Considered	Technology Abbreviation
Bag Filter 1.0 Log	BF_1_0_LOG
UV 3.0 Log	UV_3_0_LOG
Microfiltration/Ultrafiltration 2.5 Log	MF_UF_2_5_LOG
Cartridge Filter 2.0 Log	CF_2_0_LOG
Combined Filter Performance 0.5 Log	CFP_0_5_LOG
Ozone 0.5 Log	O3_0_5_LOG
Ozone 1.0 Log	O3_1_0_LOG
Ozone 2.0 Log	O3_2_0_LOG
Combined Filter Performance + Ozone (0.5 Log) 1.0 Log	CFP_O3_0_5_LOG_1_0_LOG
Ozone (1.0 Log) + Combined Filter Performance 1.5 Log	O3_1_0_LOG_CFP_1_5_LOG
Ozone (2.0 Log) + Combined Filter Performance 2.5 Log	O3_2_0_LOG_CFP_2_5_LOG
Secondary Filter 0.5 Log	SF_0_5_LOG
In-bank Filtration 1.0 Log	Inbank_1_0_LOG
In-bank Filtration + Combined Filter Performance 1.5 Log	Inbank_CFP_1_5_LOG
In-bank Filtration + Ozone (0.5 Log) 1.5 Log	Inbank_O3_0_5_LOG_1_5_LOG
Ozone (0.5 Log) + Secondary Filter 1.0 Log	O3_0_5_LOG_SF_1_0_LOG
Ozone (1.0 Log) + Secondary Filter 1.5 Log	O3_1_0_LOG_SF_1_5_LOG
Ozone (2.0 Log) + Secondary Filter 2.5 Log	O3_2_0_LOG_SF_2_5_LOG
Ozone (0.5 Log) + Watershed Control Program 1.0 Log	O3_0_5_LOG_WC_1_0_LOG
Ozone (1.0 Log) + Watershed Control Program 1.5 Log	O3_1_0_LOG_WC_1_5_LOG
Ozone (2.0 Log) + Watershed Control Program 2.5 Log	O3_2_0_LOG_WC_2_5_LOG

F.4 Technology Selection Forecast Methodology

The overall methodology used to develop the technology selection forecast for each action bin and size category relies on a "least-cost decision tree." In other words, for estimating the economic cost of the rule requirements, it assumes that drinking water plants will select the least expensive technology or combination of technologies available to meet the log removal requirements of a given action bin. Technology selection forecasts are estimated separately for the each of nine size categories.

The least-cost decision tree uses relative cost ratios to rank the technologies by cost. The relative cost ratios shown in column two of Exhibits F.3–F.34 are equal to the total annual cost of a given technology divided by the total annual cost of the cheapest technology. Total annual costs are calculated by annualizing the capital cost at a 3 percent interest rate over 20 years and adding it to the annual O&M cost.

The relative cost ratios for various technologies change with size because technologies have different economies of scale associated with them and different applicability to different flow ranges. Therefore the relative cost ratio is calculated separately for each of the nine size categories.

Technology selections within the least-cost decision tree are limited by predicted "maximum use percentages." These are limits on the percent of plants that may select a particular technology to meet the bin requirements. Maximum use percentages recognize the following: not all treatment plants may be able to implement certain technologies due to site-specific constraints such as system hydraulics, lack of space, and source water quality; for some technologies, industry may not have the capacity to meet rapid increases in demand; applicability of some technologies is dependent on existing treatment train (e.g., direct filtration plants cannot receive credit for pre-sedimentation and are estimated not to be able to achieve compliance with combined filter performance). Finally, maximum use percentages recognize special operational constraints for very small and small systems, as identified through an expert opinion process for the Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) compliance forecast. For example, ozone is not considered viable technologies for systems serving fewer than 500 people. These systems are assumed to select only bag/cartridge filters, ultraviolet (UV), and microfiltration/ultrafiltration (MF/UF).

The maximum use percentages for combination technologies are the product of the maximum use percentages for the individual technologies. The product is used because the set of conditions that limit use of one technology are assumed to be independent of the conditions that limit another. For instance, a plant that could use chlorine dioxide might not be near a source that would allow use of in-bank filtration. As an example calculation, the maximum use percentage for in-bank filtration (10 percent) combined with secondary filtration (10 percent) for large systems is equal to 1 percent—10 percent times 10 percent.

The maximum use percentages for chlorine dioxide and ozone are determined using the Surface Water Analytical Tool (SWAT). To calculate the maximum use percentage for these two disinfectants SWAT was run in monster mode. SWAT calculated the dose required to achieve the desired inactivation for each plant, along with the disinfection byproducts bromate for ozone and chlorite for chlorine dioxide. For ozone, *Cryptosporidium* inactivation levels of 0.5 log, 1.0 log and 2.0 log were used. For chlorine dioxide a *Cryptosporidium* inactivation level of 0.5 log was used. Inactivation levels were determined using the CT tables presented in the Long Term 2 Enhanced Surface Water Rule. It was assumed that the disinfectant was applied to the settled water before the filters. This positioning would be the one plants would select to maximize inactivation and minimize byproduct formation. Once SWAT had determined the dose and byproduct concentration, the percent of plants that could achieve the desired inactivation without exceeding 80 percent of the MCL on the average for either bromate or chlorite was determined and used as the maximum use percentage. The 80 percent safety factor was used in order to ensure that

changes in water quality or treatment performance would not cause violations of the MCL. For chlorine dioxide, because the required dose to achieve 0.5 log *Cryptosporidium* inactivation is high under most water conditions and chlorite production can be 70 to 80 percent of the total dose, only 2 percent of plants were predicted to be able to use chlorine dioxide without exceeding 80 percent of the chlorite MCL. To be conservative and to account for other difficulties such as safety issues in using chlorine dioxide, the maximum use percent for chlorine dioxide was set to zero.

Maximum use percentages for bag filters, cartridge filters, and UV disinfection were set to 90 percent. The 90 percent value was arrived at as a conservative estimate based on the best professional judgement of water professionals. Most industry experts felt there were no factors which would prohibit systems from using these technologies either in terms of water quality or system configuration. The maximum use percentages were set at 90 percent rather than 100 percent to give a conservative estimate and to take into account unforeseen difficulties. Maximum use percentages for other technologies were all set by best professional judgement. This judgement took into account factors such as limitations in system configuration, water quality, and the number of plants that might already have taken credit for having the technology installed.

Plants predicted to have toolbox technologies installed prior to the promulgation of LT2ESWTR use a separate set of maximum use percentages than those plants without pre-LT2 credit. These plants must be tracked separately because those with existing toolbox technologies cannot be allowed to select those same technologies. For example, consider the maximum use percentage for combined filter performance for large systems. It is assumed that overall 80 percent of conventional filtration plants can use combined filter performance to achieve a reduction credit. 60 percent of all large systems are conventional filtration plants according to the 2000 CWSS survey. For the large plants, 58 percent receive a pre-LT2 credit, 46 percent due to credit for combined filter performance. Therefore, 80 percent (46/58) of large plants with pre-LT2 credit already achieve compliance for combined filter performance and would not be able to select that technology to obtain the remainder of their required log treatment. Also, because a large percentage of conventional plants (46 out of 60 percent) receive the combined filter performance pre-LT2ESWTR credit, the remaining plants will disproportionately use treatment processes other than conventional filtration. Of the remaining plants only 26 percent ((0.6-0.46)/0.54) are conventional. These 26 percent are assumed to be evenly distributed among the 12 percent of plants that received a pre-LT2ESWTR credit and the 42 percent that did not. The maximum use percentage of 80 percent of all conventional systems is still assumed. The resulting maximum use percentages for pre-LT2 credit plants is 4.2 percent (0.2*0.8*0.26) and for those plants not receiving the pre-LT2 credit, the maximum use percentage is 20.8 percent (0.8*0.26).

Exhibits F.3 through F.34 present the relative cost ratios and maximum use percentages used for the very small, small, medium, and large plant technology selection forecasts. The percentages listed are limitations on the percent of plants that may use individual technologies.

A technology or combination of technologies may only be used if its log credit is equal to or greater than the log action bin. The least expensive technology is chosen first and the maximum use percentage is used without any adjustment. The maximum use percentage of the second least expensive technology is then multiplied by the difference of 100 percent and the maximum use percentage of the first technology. This process continues through all the technologies until the sum of the calculated percentages equals 100 percent. Microfiltration (MF/UF) does not have a limit on its maximum use percentage, so any plants not selecting a cheaper technology are included in this technology. If the percent of plants selecting a particular technology or technology combination is less than 0.1 percent, it is assumed to be negligible, and the next technology is evaluated.

Below is an example that shows a step-by-step calculation of the technology selection forecast for small systems serving less than 500 people in the 2.0 log action bin. Note that combinations with technologies that have been previously used in the decision tree may not be selected. For example, the first step assumes that all plants that could use cartridge filters do so. Therefore, the option of cartridge filters plus chlorine dioxide cannot be selected, as no plants remain that have the capability of using cartridge filters. On the other hand, if the technology selected first is not a single technology but a combination of technologies, other combinations that utilize that technology may be possible. For example, in the 2.5 log bin, cartridge filters plus chlorine dioxide is the cheapest technology; 12 percent of the plants would use it. Because the maximum use percentage for cartridge filters is 50 percent and only 12 percent have selected cartridge filters, 38 percent of the plants could still select cartridge filters. Therefore, the option of cartridge filters plus ozone is not ruled out.

Choose least expensive technology that has log credit equal to 2.0 or more:

Technology	Log Credit	Relative Cost	Max % Usage
CF	2.0	1.7	90% including BF

% plants selecting CF = Max % Usage * % Plants Available = (0.9)*(1.0)

=90%(A)

Choose 2nd least expensive technology that has log credit equal to 2.0 or more:

Technology	Log Credit	Relative Cost	Max % Usage
UV	3.0	2.6	90%

% plants selecting CF = Max % Usage * % Plants Available = (0.9)*(1.0-A)

=9%(B)

Choose 3rd least expensive technology that has log credit equal to 2.0 or more:

Technology	Log Credit	Relative Cost	Max % Usage
CF + ClO_2	2.5	4.8	20.7%

% plants selecting CF + ClO_2 = **0%** because all the plants remaining after selection of UV that could use cartridge filters (15%) have already done so. For this reason, omit CF + O_3(.5) and CF + EF as well.

Choose 4th least expensive technology that has log credit equal to 2.0 or more:

Technology	Log Credit	Relative Cost	Max % Usage
O_3(2)	2.0	17.6	66%

% plants selecting O_3 = Max % Usage * O3 % Plants Avail. = (0.66)*(1-A-B)

= **0.66%(C)**

Choose 5th least expensive technology that has log credit equal to 2.0 or more:

Technology	Log Credit	Relative Cost	Max % Usage
MF/UF	2.5	21.2	100%

% plants selecting MF = Max % Usage * % Plants Avail. = (1.0)*(1-A-B-C) =

= **0.34%(D)**

Check: A + B + C + D = 90 + 9 + .66 + .34 = **100%**

F.5 Scenarios and Technologies Evaluated for this EA

This appendix provides technology selection for the standard analysis and the high bromide sensitivity analysis (summarized in section 6.11). Bromide is a concern for ozone because it reacts with ozone to form bromate, a regulated contaminant. EPA calculated all cost estimates for an a separate baseline that assumes the influent source water has an elevated bromide concentration, and thus, limits the use of ozone. Exhibit F.2 summarizes the conditions (standard bromide and increased bromide) and technologies evaluated in this appendix.

Exhibit F.2: Scenarios Evaluated for this EA

Analysis	UV Maximum Use Percentage	Bromate MCL	Influent Bromide
UV90-10 (standard)	90%	10 ppb	ICR average concentration
UV90-10B	90%	10 ppb	ICR average concentration + 50 ppb

F.6 Results

F.6.1 Standard Conditions

The compliance forecast is the percent of plants selecting each technology for the five action bins. The compliance forecasts for very small, small, medium, and large plants are provided in Exhibits F.3 to F.10. Technologies not selected by any plants are not included in the exhibits. The exhibits show the percentage of plants selecting the technology or combination of technologies in each of the bins. The exhibits also show the relative cost, the minimum log removal, and the maximum use percentage of each technology or combination of technologies. The selection percentages remain constant, regardless of the regulatory option or the occurrence distribution used. Although the number of plants selecting a technology depends on these options, the percentages remain constant. The only variables that affect the selection percentages are size of the plant, the bin in which the plant is placed, and the limits on technology selection covered in the scenarios in Exhibit F.2. Although costs are computed for all three *Cryptosporidium* distributions, the distributions do not affect the technology selection. Exhibits F.3 to F.18 show the technology selection forecasts for the UV90-10 scenario.

Exhibit F.3: Technology Selection for Very Small Plants (<100)
UV90-10

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
BF_1_0_LOG	1.0	1.0	90.0%	90.0%	90.0%	0.0%	0.0%	0.0%
CF_2_0_LOG	1.2	2.0	90.0%	0.0%	0.0%	90.0%	90.0%	0.0%
UV_3_0_LOG	3.8	3.0	90.0%	9.0%	9.0%	9.0%	9.0%	90.0%
MF_UF_2_5_LOG	15.6	2.5	100.0%	1.0%	1.0%	1.0%	1.0%	10.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.4: Technology Selection for Very Small Plants (100-499)
UV90-10

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
BF_1_0_LOG	1.0	1.0	90.0%	90.0%	90.0%	0.0%	0.0%	0.0%
CF_2_0_LOG	1.7	2.0	90.0%	0.0%	0.0%	90.0%	90.0%	0.0%
UV_3_0_LOG	3.9	3.0	90.0%	9.0%	9.0%	9.0%	9.0%	90.0%
MF_UF_2_5_LOG	21.1	2.5	100.0%	1.0%	1.0%	1.0%	1.0%	10.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.5: Technology Selection for Small Plants (500-999)
UV90-10, no pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100.0%	100.0%	100.0%	100.0%	100.0%
BF_1_0_LOG	1.0	1.0	90.0%	90.0%	90.0%	0.0%	0.0%	0.0%
CF_2_0_LOG	2.4	2.0	90.0%	0.0%	0.0%	90.0%	90.0%	0.0%
UV_3_0_LOG	3.5	3.0	90.0%	9.0%	9.0%	9.0%	9.0%	90.0%
CFP_0_5_LOG	7.7	0.5	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	27.1	2.5	100.0%	1.0%	1.0%	1.0%	1.0%	10.0%
O3_0_5_LOG	35.1	0.5	87.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG	37.0	1.0	75.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG	38.4	2.0	54.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	42.8	1.0	3.9%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	44.7	1.5	3.4%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	46.0	2.5	2.4%	0.0%	0.0%	0.0%	0.0%	0.0%
SF_0_5_LOG	54.6	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.6: Technology Selection for Small Plants (500-999) UV90-10, with pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
BF_1_0_LOG	1.0	1.0	90.0%	90.0%	90.0%	0.0%	0.0%	0.0%
CF_2_0_LOG	2.4	2.0	90.0%	0.0%	0.0%	90.0%	90.0%	0.0%
UV_3_0_LOG	3.5	3.0	90.0%	9.0%	9.0%	9.0%	9.0%	90.0%
CFP_0_5_LOG	7.7	0.5	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	27.1	2.5	100.0%	1.0%	1.0%	1.0%	1.0%	10.0%
O3_0_5_LOG	35.1	0.5	87.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG	37.0	1.0	75.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG	38.4	2.0	54.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	42.8	1.0	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	44.7	1.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	46.0	2.5	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
SF_0_5_LOG	54.6	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.7: Technology Selection for Small Plants (1,000-3,299) UV90-10, no pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
BF_1_0_LOG	1.0	1.0	90.0%	90.0%	90.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	2.8	3.0	90.0%	9.0%	9.0%	90.0%	90.0%	90.0%
CF_2_0_LOG	2.8	2.0	90.0%	0.0%	0.0%	9.0%	9.0%	0.0%
CFP_0_5_LOG	3.9	0.5	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_0_5_LOG	20.3	0.5	87.0%	0.8%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	21.2	2.5	100.0%	0.1%	1.0%	1.0%	1.0%	10.0%
O3_1_0_LOG	23.0	1.0	75.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	24.3	1.0	3.9%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG	25.1	2.0	54.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SF_0_5_LOG	26.8	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	26.9	1.5	3.4%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	29.0	2.5	2.4%	0.0%	0.0%	0.0%	0.0%	0.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.8: Technology Selection for Small Plants (1,000-3,299) UV90-10, with pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
BF_1_0_LOG	1.0	1.0	90.0%	90.0%	90.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	2.8	3.0	90.0%	9.0%	9.0%	90.0%	90.0%	90.0%
CF_2_0_LOG	2.8	2.0	90.0%	0.0%	0.0%	9.0%	9.0%	0.0%
CFP_0_5_LOG	3.9	0.5	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_0_5_LOG	20.3	0.5	87.0%	0.9%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	21.2	2.5	100.0%	0.1%	1.0%	1.0%	1.0%	10.0%
O3_1_0_LOG	23.0	1.0	75.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	24.3	1.0	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG	25.1	2.0	54.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SF_0_5_LOG	26.8	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	26.9	1.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	29.0	2.5	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.9: Technology Selection for Small Plants (3,300-9,999)
UV90-10, no pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
BF_1_0_LOG	1.0	1.0	90.0%	90.0%	90.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	2.1	3.0	90.0%	9.0%	9.0%	90.0%	90.0%	90.0%
CFP_0_5_LOG	2.5	0.5	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%
CF_2_0_LOG	2.8	2.0	90.0%	0.0%	0.0%	9.0%	9.0%	0.0%
O3_0_5_LOG	9.4	0.5	87.0%	0.8%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG	10.7	1.0	75.0%	0.1%	0.8%	0.0%	0.0%	0.0%
O3_2_0_LOG	11.1	2.0	54.0%	0.0%	0.1%	0.5%	0.5%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	11.9	1.0	3.9%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	13.2	1.5	3.4%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	13.6	2.5	2.4%	0.0%	0.0%	0.0%	0.0%	0.2%
SF_0_5_LOG	14.0	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	16.9	2.5	100.0%	0.0%	0.1%	0.4%	0.4%	9.8%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.10: Technology Selection for Small Plants (3,300-9,999) UV90-10, with pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
BF_1_0_LOG	1.0	1.0	90.0%	90.0%	90.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	2.1	3.0	90.0%	9.0%	9.0%	90.0%	90.0%	90.0%
CFP_0_5_LOG	2.5	0.5	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
CF_2_0_LOG	2.8	2.0	90.0%	0.0%	0.0%	9.0%	9.0%	0.0%
O3_0_5_LOG	9.4	0.5	87.0%	0.9%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG	10.7	1.0	75.0%	0.1%	0.8%	0.0%	0.0%	0.0%
O3_2_0_LOG	11.1	2.0	54.0%	0.0%	0.1%	0.5%	0.5%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	11.9	1.0	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	13.2	1.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	13.6	2.5	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
SF_0_5_LOG	14.0	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	16.9	2.5	100.0%	0.0%	0.1%	0.5%	0.5%	10.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.11: Technology Selection for Medium Plants (10,000-49,999) UV90-10, no pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
CFP_0_5_LOG	1.1	0.5	20.7%	20.7%	0.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	1.2	3.0	90.0%	71.4%	90.0%	90.0%	90.0%	90.0%
Inbank_1_0_LOG	2.4	1.0	10.0%	0.8%	1.0%	0.0%	0.0%	0.0%
Inbank_CFP_1_5_LOG	3.6	1.5	2.1%	0.1%	0.2%	0.2%	0.0%	0.0%
O3_0_5_LOG	6.0	0.5	87.0%	6.1%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	7.1	1.0	18.0%	0.2%	1.6%	0.0%	0.0%	0.0%
O3_1_0_LOG	7.3	1.0	75.0%	0.6%	5.4%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	8.4	1.5	15.5%	0.0%	0.3%	1.5%	0.0%	0.0%
Inbank_O3_0_5_LOG_1_5_LOG	8.4	1.5	8.7%	0.0%	0.1%	0.7%	0.0%	0.0%
O3_2_0_LOG	9.8	2.0	54.0%	0.1%	0.8%	4.1%	5.4%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	10.9	2.5	11.2%	0.0%	0.1%	0.4%	0.5%	1.1%
SF_0_5_LOG	12.7	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	18.6	2.5	100.0%	0.1%	0.6%	3.1%	4.1%	8.9%
O3_0_5_LOG_SF_1_0_LOG	18.6	1.0	8.7%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_SF_1_5_LOG	19.9	1.5	7.5%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_SF_2_5_LOG	22.5	2.5	5.4%	0.0%	0.0%	0.0%	0.0%	0.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.12: Technology Selection for Medium Plants (10,000-49,999) UV90-10, with pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
CFP_0_5_LOG	1.1	0.5	3.4%	3.4%	0.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	1.2	3.0	90.0%	87.0%	90.0%	90.0%	90.0%	90.0%
Inbank_1_0_LOG	2.4	1.0	10.0%	1.0%	1.0%	0.0%	0.0%	0.0%
Inbank_CFP_1_5_LOG	3.6	1.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_0_5_LOG	6.0	0.5	87.0%	7.5%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	7.1	1.0	2.9%	0.0%	0.3%	0.0%	0.0%	0.0%
O3_1_0_LOG	7.3	1.0	75.0%	0.8%	6.5%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	8.4	1.5	2.5%	0.0%	0.1%	0.3%	0.0%	0.0%
Inbank_O3_0_5_LOG_1_5_LOG	8.4	1.5	8.7%	0.0%	0.2%	0.8%	0.0%	0.0%
O3_2_0_LOG	9.8	2.0	54.0%	0.1%	1.0%	4.8%	5.4%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	10.9	2.5	1.8%	0.0%	0.0%	0.1%	0.1%	0.2%
SF_0_5_LOG	12.7	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	18.6	2.5	100.0%	0.1%	0.9%	4.0%	4.5%	9.8%
O3_0_5_LOG_SF_1_0_LOG	18.6	1.0	8.7%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_SF_1_5_LOG	19.9	1.5	7.5%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_SF_2_5_LOG	22.5	2.5	5.4%	0.0%	0.0%	0.0%	0.0%	0.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.13: Technology Selection for Medium Plants (50,000-99,999) UV90-10, no pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
CFP_0_5_LOG	1.5	0.5	20.7%	20.7%	0.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	1.9	3.0	90.0%	71.4%	90.0%	90.0%	90.0%	90.0%
Inbank_1_0_LOG	4.5	1.0	10.0%	0.8%	1.0%	0.0%	0.0%	0.0%
Inbank_CFP_1_5_LOG	6.0	1.5	2.1%	0.1%	0.2%	0.2%	0.0%	0.0%
O3_0_5_LOG	7.1	0.5	87.0%	6.1%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	8.6	1.0	18.0%	0.2%	1.6%	0.0%	0.0%	0.0%
O3_1_0_LOG	8.9	1.0	75.0%	0.6%	5.4%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	10.4	1.5	15.5%	0.0%	0.3%	1.5%	0.0%	0.0%
Inbank_O3_0_5_LOG_1_5_LOG	11.7	1.5	8.7%	0.0%	0.1%	0.7%	0.0%	0.0%
O3_2_0_LOG	13.7	2.0	54.0%	0.1%	0.8%	4.1%	5.4%	0.0%
SF_0_5_LOG	14.2	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	15.2	2.5	11.2%	0.0%	0.1%	0.4%	0.5%	1.1%
O3_0_5_LOG_SF_1_0_LOG	21.4	1.0	8.7%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_SF_1_5_LOG	23.1	1.5	7.5%	0.0%	0.0%	0.2%	0.0%	0.0%
O3_2_0_LOG_SF_2_5_LOG	28.0	2.5	5.4%	0.0%	0.0%	0.2%	0.2%	0.5%
MF_UF_2_5_LOG	31.9	2.5	100.0%	0.0%	0.5%	2.7%	3.9%	8.4%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.14: Technology Selection for Medium Plants (50,000-99,999) UV90-10, with pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
CFP_0_5_LOG	1.5	0.5	3.4%	3.4%	0.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	1.9	3.0	90.0%	87.0%	90.0%	90.0%	90.0%	90.0%
Inbank_1_0_LOG	4.5	1.0	10.0%	1.0%	1.0%	0.0%	0.0%	0.0%
Inbank_CFP_1_5_LOG	6.0	1.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_0_5_LOG	7.1	0.5	87.0%	7.5%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	8.6	1.0	2.9%	0.0%	0.3%	0.0%	0.0%	0.0%
O3_1_0_LOG	8.9	1.0	75.0%	0.8%	6.5%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	10.4	1.5	2.5%	0.0%	0.1%	0.3%	0.0%	0.0%
Inbank_O3_0_5_LOG_1_5_LOG	11.7	1.5	8.7%	0.0%	0.2%	0.8%	0.0%	0.0%
O3_2_0_LOG	13.7	2.0	54.0%	0.1%	1.0%	4.8%	5.4%	0.0%
SF_0_5_LOG	14.2	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	15.2	2.5	1.8%	0.0%	0.0%	0.1%	0.1%	0.2%
O3_0_5_LOG_SF_1_0_LOG	21.4	1.0	8.7%	0.0%	0.1%	0.0%	0.0%	0.0%
O3_1_0_LOG_SF_1_5_LOG	23.1	1.5	7.5%	0.0%	0.1%	0.3%	0.0%	0.0%
O3_2_0_LOG_SF_2_5_LOG	28.0	2.5	5.4%	0.0%	0.0%	0.2%	0.2%	0.5%
MF_UF_2_5_LOG	31.9	2.5	100.0%	0.1%	0.7%	3.5%	4.3%	9.3%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.15: Technology Selection for Large Plants (100,000-999,999) UV90-10, no pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
CFP_0_5_LOG	1.8	0.5	20.7%	20.7%	0.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	2.2	3.0	90.0%	71.4%	90.0%	90.0%	90.0%	90.0%
Inbank_1_0_LOG	8.1	1.0	10.0%	0.8%	1.0%	0.0%	0.0%	0.0%
O3_0_5_LOG	9.2	0.5	87.0%	6.2%	0.0%	0.0%	0.0%	0.0%
Inbank_CFP_1_5_LOG	9.9	1.5	2.1%	0.0%	0.2%	0.2%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	11.0	1.0	18.0%	0.2%	1.6%	0.0%	0.0%	0.0%
O3_1_0_LOG	11.9	1.0	75.0%	0.6%	5.4%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	13.8	1.5	15.5%	0.0%	0.3%	1.5%	0.0%	0.0%
Inbank_O3_0_5_LOG_1_5_LOG	17.3	1.5	8.7%	0.0%	0.1%	0.7%	0.0%	0.0%
SF_0_5_LOG	17.6	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG	20.1	2.0	54.0%	0.1%	0.8%	4.1%	5.4%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	21.9	2.5	11.2%	0.0%	0.1%	0.4%	0.5%	1.1%
O3_0_5_LOG_SF_1_0_LOG	26.8	1.0	8.7%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_SF_1_5_LOG	29.5	1.5	7.5%	0.0%	0.0%	0.2%	0.0%	0.0%
O3_2_0_LOG_SF_2_5_LOG	37.7	2.5	5.4%	0.0%	0.0%	0.2%	0.2%	0.5%
O3_0_5_LOG_WC_1_0_LOG	43.8	1.0	8.7%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_WC_1_5_LOG	46.6	1.5	7.5%	0.0%	0.0%	0.2%	0.0%	0.0%
MF_UF_2_5_LOG	51.0	2.5	100.0%	0.0%	0.4%	2.5%	3.9%	8.4%
O3_2_0_LOG_WC_2_5_LOG	54.7	2.5	5.4%	0.0%	0.0%	0.0%	0.0%	0.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.16: Technology Selection for Large Plants (100,000-999,999) UV90-10, with pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
CFP_0_5_LOG	1.8	0.5	4.3%	4.3%	0.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	2.2	3.0	90.0%	86.1%	90.0%	90.0%	90.0%	90.0%
Inbank_1_0_LOG	8.1	1.0	10.0%	1.0%	1.0%	0.0%	0.0%	0.0%
O3_0_5_LOG	9.2	0.5	87.0%	7.5%	0.0%	0.0%	0.0%	0.0%
Inbank_CFP_1_5_LOG	9.9	1.5	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	11.0	1.0	3.2%	0.0%	0.3%	0.0%	0.0%	0.0%
O3_1_0_LOG	11.9	1.0	75.0%	0.8%	6.5%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	13.8	1.5	3.2%	0.0%	0.1%	0.3%	0.0%	0.0%
Inbank_O3_0_5_LOG_1_5_LOG	17.3	1.5	8.7%	0.0%	0.2%	0.8%	0.0%	0.0%
SF_0_5_LOG	17.6	0.5	7.9%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG	20.1	2.0	54.0%	0.1%	1.0%	4.8%	5.4%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	21.9	2.5	2.3%	0.0%	0.0%	0.1%	0.1%	0.2%
O3_0_5_LOG_SF_1_0_LOG	26.8	1.0	6.9%	0.0%	0.1%	0.0%	0.0%	0.0%
O3_1_0_LOG_SF_1_5_LOG	29.5	1.5	5.9%	0.0%	0.0%	0.2%	0.0%	0.0%
O3_2_0_LOG_SF_2_5_LOG	37.7	2.5	4.3%	0.0%	0.0%	0.2%	0.2%	0.4%
O3_0_5_LOG_WC_1_0_LOG	43.8	1.0	8.7%	0.0%	0.1%	0.0%	0.0%	0.0%
O3_1_0_LOG_WC_1_5_LOG	46.6	1.5	7.5%	0.0%	0.0%	0.3%	0.0%	0.0%
MF_UF_2_5_LOG	51.0	2.5	100.0%	0.1%	0.6%	3.3%	4.3%	9.4%
O3_2_0_LOG_WC_2_5_LOG	54.7	2.5	5.4%	0.0%	0.0%	0.0%	0.0%	0.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.17: Technology Selection for Large Plants (≥1,000,000) UV90-10, no pre-LT2 credits

Note: Total may not add to 100.0% because of rounding.

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
CFP_0_5_LOG	1.5	0.5	20.7%	20.7%	0.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	2.4	3.0	90.0%	71.4%	90.0%	90.0%	90.0%	90.0%
O3_0_5_LOG	10.8	0.5	87.0%	6.9%	0.0%	0.0%	0.0%	0.0%
Inbank_1_0_LOG	11.4	1.0	10.0%	0.1%	1.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	12.3	1.0	18.0%	0.2%	1.6%	0.0%	0.0%	0.0%
Inbank_CFP_1_5_LOG	12.9	1.5	2.1%	0.0%	0.2%	0.2%	0.0%	0.0%
O3_1_0_LOG	14.2	1.0	75.0%	0.6%	5.4%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	15.8	1.5	15.5%	0.0%	0.3%	1.5%	0.0%	0.0%
SF_0_5_LOG	22.0	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Inbank_O3_0_5_LOG_1_5_LOG	22.2	1.5	8.7%	0.0%	0.1%	0.7%	0.0%	0.0%
O3_2_0_LOG	25.0	2.0	54.0%	0.1%	0.8%	4.1%	5.4%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	26.6	2.5	11.2%	0.0%	0.1%	0.4%	0.5%	1.1%
O3_0_5_LOG_SF_1_0_LOG	32.7	1.0	8.7%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_SF_1_5_LOG	36.2	1.5	7.5%	0.0%	0.0%	0.2%	0.0%	0.0%
O3_2_0_LOG_SF_2_5_LOG	47.0	2.5	5.4%	0.0%	0.0%	0.2%	0.2%	0.5%
O3_0_5_LOG_WC_1_0_LOG	54.3	1.0	8.7%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_WC_1_5_LOG	57.7	1.5	7.5%	0.0%	0.0%	0.2%	0.0%	0.0%
O3_2_0_LOG_WC_2_5_LOG	68.5	2.5	5.4%	0.0%	0.0%	0.1%	0.2%	0.5%
MF_UF_2_5_LOG	68.8	2.5	100.0%	0.0%	0.4%	2.4%	3.7%	7.9%

Exhibit F.18: Technology Selection for Large Plants (≥1,000,000) UV90-10, with pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
CFP_0_5_LOG	1.5	0.5	4.3%	4.3%	0.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	2.4	3.0	90.0%	86.1%	90.0%	90.0%	90.0%	90.0%
O3_0_5_LOG	10.8	0.5	87.0%	8.3%	0.0%	0.0%	0.0%	0.0%
Inbank_1_0_LOG	11.4	1.0	10.0%	0.1%	1.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	12.3	1.0	3.2%	0.0%	0.3%	0.0%	0.0%	0.0%
Inbank_CFP_1_5_LOG	12.9	1.5	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG	14.2	1.0	75.0%	0.8%	6.5%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	15.8	1.5	3.2%	0.0%	0.1%	0.3%	0.0%	0.0%
SF_0_5_LOG	22.0	0.5	7.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Inbank_O3_0_5_LOG_1_5_LOG	22.2	1.5	8.7%	0.0%	0.2%	0.8%	0.0%	0.0%
O3_2_0_LOG	25.0	2.0	54.0%	0.1%	1.0%	4.8%	5.4%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	26.6	2.5	2.3%	0.0%	0.0%	0.1%	0.1%	0.2%
O3_0_5_LOG_SF_1_0_LOG	32.7	1.0	6.9%	0.0%	0.1%	0.0%	0.0%	0.0%
O3_1_0_LOG_SF_1_5_LOG	36.2	1.5	5.9%	0.0%	0.0%	0.2%	0.0%	0.0%
O3_2_0_LOG_SF_2_5_LOG	47.0	2.5	4.3%	0.0%	0.0%	0.2%	0.2%	0.4%
O3_0_5_LOG_WC_1_0_LOG	54.3	1.0	8.7%	0.0%	0.1%	0.0%	0.0%	0.0%
O3_1_0_LOG_WC_1_5_LOG	57.7	1.5	7.5%	0.0%	0.0%	0.3%	0.0%	0.0%
O3_2_0_LOG_WC_2_5_LOG	68.5	2.5	5.4%	0.0%	0.0%	0.2%	0.2%	0.5%
MF_UF_2_5_LOG	68.8	2.5	100.0%	0.1%	0.6%	3.1%	4.1%	8.8%

Note: Total may not add to 100.0% because of rounding.

F.6.2 Sensitivity Analysis

Technology selection forecasts for the high bromide sensitivity analysis are given in this section.

Exhibits F.19 through F.34 show the technology selection forecasts for the UV90-10B sensitivity analysis. Displayed for each technology or combination of technologies are relative cost, minimum log removal credit, maximum use percentage, and percent of plants selecting the technologies for each bin.

Exhibit F.19: Technology Selection for Very Small Plants (<100) UV90-10B

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
BF_1_0_LOG	1.0	1.0	90.0%	90.0%	90.0%	0.0%	0.0%	0.0%
CF_2_0_LOG	1.2	2.0	90.0%	0.0%	0.0%	90.0%	90.0%	0.0%
UV_3_0_LOG	3.8	3.0	90.0%	9.0%	9.0%	9.0%	9.0%	90.0%
MF_UF_2_5_LOG	15.6	2.5	100.0%	1.0%	1.0%	1.0%	1.0%	10.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.20: Technology Selection for Very Small Plants (100-499)
UV90-10B

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
BF_1_0_LOG	1.0	1.0	90.0%	90.0%	90.0%	0.0%	0.0%	0.0%
CF_2_0_LOG	1.7	2.0	90.0%	0.0%	0.0%	90.0%	90.0%	0.0%
UV_3_0_LOG	3.9	3.0	90.0%	9.0%	9.0%	9.0%	9.0%	90.0%
MF_UF_2_5_LOG	21.1	2.5	100.0%	1.0%	1.0%	1.0%	1.0%	10.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.21: Technology Selection for Small Plants (501-999)
UV90-10B, no pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
BF_1_0_LOG	1.0	1.0	90.0%	90.0%	90.0%	0.0%	0.0%	0.0%
CF_2_0_LOG	2.4	2.0	90.0%	0.0%	0.0%	90.0%	90.0%	0.0%
UV_3_0_LOG	3.5	3.0	90.0%	9.0%	9.0%	9.0%	9.0%	90.0%
CFP_0_5_LOG	7.7	0.5	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	27.1	2.5	100.0%	1.0%	1.0%	1.0%	1.0%	10.0%
O3_0_5_LOG	35.1	0.5	84.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG	37.0	1.0	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG	38.4	2.0	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	42.8	1.0	3.8%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	44.7	1.5	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	46.0	2.5	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
SF_0_5_LOG	54.6	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.22: Technology Selection for Small Plants (501-999)
UV90-10B, with pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
BF_1_0_LOG	1.0	1.0	90.0%	90.0%	90.0%	0.0%	0.0%	0.0%
CF_2_0_LOG	2.4	2.0	90.0%	0.0%	0.0%	90.0%	90.0%	0.0%
UV_3_0_LOG	3.5	3.0	90.0%	9.0%	9.0%	9.0%	9.0%	90.0%
CFP_0_5_LOG	7.7	0.5	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	27.1	2.5	100.0%	1.0%	1.0%	1.0%	1.0%	10.0%
O3_0_5_LOG	35.1	0.5	84.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG	37.0	1.0	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG	38.4	2.0	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	42.8	1.0	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	44.7	1.5	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	46.0	2.5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SF_0_5_LOG	54.6	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.23: Technology Selection for Small Plants (1,000-3,299)
UV90-10B, no pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
BF_1_0_LOG	1.0	1.0	90.0%	90.0%	90.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	2.8	3.0	90.0%	9.0%	9.0%	90.0%	90.0%	90.0%
CF_2_0_LOG	2.8	2.0	90.0%	0.0%	0.0%	9.0%	9.0%	0.0%
CFP_0_5_LOG	3.9	0.5	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_0_5_LOG	20.3	0.5	84.0%	0.8%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	21.2	2.5	100.0%	0.2%	1.0%	1.0%	1.0%	10.0%
O3_1_0_LOG	23.0	1.0	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	24.3	1.0	3.8%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG	25.1	2.0	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SF_0_5_LOG	26.8	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	26.9	1.5	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	29.0	2.5	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.24: Technology Selection for Small Plants (1,000-3,299) UV90-10B, with pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
BF_1_0_LOG	1.0	1.0	90.0%	90.0%	90.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	2.8	3.0	90.0%	9.0%	9.0%	90.0%	90.0%	90.0%
CF_2_0_LOG	2.8	2.0	90.0%	0.0%	0.0%	9.0%	9.0%	0.0%
CFP_0_5_LOG	3.9	0.5	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_0_5_LOG	20.3	0.5	84.0%	0.8%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	21.2	2.5	100.0%	0.2%	1.0%	1.0%	1.0%	10.0%
O3_1_0_LOG	23.0	1.0	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	24.3	1.0	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG	25.1	2.0	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%
SF_0_5_LOG	26.8	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	26.9	1.5	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	29.0	2.5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.25: Technology Selection for Small Plants (3,300-9,999) UV90-10B, no pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
BF_1_0_LOG	1.0	1.0	90.0%	90.0%	90.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	2.1	3.0	90.0%	9.0%	9.0%	90.0%	90.0%	90.0%
CFP_0_5_LOG	2.5	0.5	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%
CF_2_0_LOG	2.8	2.0	90.0%	0.0%	0.0%	9.0%	9.0%	0.0%
O3_0_5_LOG	9.4	0.5	84.0%	0.8%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG	10.7	1.0	50.0%	0.1%	0.5%	0.0%	0.0%	0.0%
O3_2_0_LOG	11.1	2.0	3.0%	0.0%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	11.9	1.0	3.8%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	13.2	1.5	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	13.6	2.5	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
SF_0_5_LOG	14.0	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	16.9	2.5	100.0%	0.1%	0.5%	0.9%	1.0%	10.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.26: Technology Selection for Small Plants (3,300-9,999) UV90-10B, with pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
BF_1_0_LOG	1.0	1.0	90.0%	90.0%	90.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	2.1	3.0	90.0%	9.0%	9.0%	90.0%	90.0%	90.0%
CFP_0_5_LOG	2.5	0.5	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
CF_2_0_LOG	2.8	2.0	90.0%	0.0%	0.0%	9.0%	9.0%	0.0%
O3_0_5_LOG	9.4	0.5	84.0%	0.8%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG	10.7	1.0	50.0%	0.1%	0.5%	0.0%	0.0%	0.0%
O3_2_0_LOG	11.1	2.0	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	11.9	1.0	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	13.2	1.5	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	13.6	2.5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
SF_0_5_LOG	14.0	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	16.9	2.5	100.0%	0.1%	0.5%	1.0%	1.0%	10.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.27: Technology Selection for Medium Plants (10,000-49,999) UV90-10B, no pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
CFP_0_5_LOG	1.1	0.5	20.7%	20.7%	0.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	1.2	3.0	90.0%	71.4%	90.0%	90.0%	90.0%	90.0%
Inbank_1_0_LOG	2.4	1.0	10.0%	0.8%	1.0%	0.0%	0.0%	0.0%
Inbank_CFP_1_5_LOG	3.6	1.5	2.1%	0.1%	0.2%	0.2%	0.0%	0.0%
O3_0_5_LOG	6.0	0.5	84.0%	5.9%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	7.1	1.0	17.4%	0.2%	1.5%	0.0%	0.0%	0.0%
O3_1_0_LOG	7.3	1.0	50.0%	0.5%	3.6%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	8.4	1.5	10.4%	0.0%	0.4%	1.0%	0.0%	0.0%
Inbank_O3_0_5_LOG_1_5_LOG	8.4	1.5	8.4%	0.0%	0.3%	0.7%	0.0%	0.0%
O3_2_0_LOG	9.8	2.0	3.3%	0.0%	0.1%	0.3%	0.3%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	10.9	2.5	0.7%	0.0%	0.0%	0.1%	0.1%	0.1%
SF_0_5_LOG	12.7	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	18.6	2.5	100.0%	0.3%	2.9%	7.7%	9.6%	9.9%
O3_0_5_LOG_SF_1_0_LOG	18.6	1.0	8.4%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_SF_1_5_LOG	19.9	1.5	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_SF_2_5_LOG	22.5	2.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.28: Technology Selection for Medium Plants (10,000-49,999) UV90-10B, with pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
CFP_0_5_LOG	1.1	0.5	3.4%	3.4%	0.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	1.2	3.0	90.0%	87.0%	90.0%	90.0%	90.0%	90.0%
Inbank_1_0_LOG	2.4	1.0	10.0%	1.0%	1.0%	0.0%	0.0%	0.0%
Inbank_CFP_1_5_LOG	3.6	1.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_0_5_LOG	6.0	0.5	84.0%	7.3%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	7.1	1.0	2.8%	0.0%	0.3%	0.0%	0.0%	0.0%
O3_1_0_LOG	7.3	1.0	50.0%	0.7%	4.4%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	8.4	1.5	1.7%	0.0%	0.1%	0.2%	0.0%	0.0%
Inbank_O3_0_5_LOG_1_5_LOG	8.4	1.5	8.4%	0.1%	0.4%	0.8%	0.0%	0.0%
O3_2_0_LOG	9.8	2.0	3.3%	0.0%	0.1%	0.3%	0.3%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	10.9	2.5	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
SF_0_5_LOG	12.7	0.5	10.0%	0.1%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	18.6	2.5	100.0%	0.5%	3.8%	8.7%	9.7%	10.0%
O3_0_5_LOG_SF_1_0_LOG	18.6	1.0	8.4%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_SF_1_5_LOG	19.9	1.5	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_SF_2_5_LOG	22.5	2.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.29: Technology Selection for Medium Plants (50,000-99,999) UV90-10B, no pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
CFP_0_5_LOG	1.5	0.5	20.7%	20.7%	0.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	1.9	3.0	90.0%	71.4%	90.0%	90.0%	90.0%	90.0%
Inbank_1_0_LOG	4.5	1.0	10.0%	0.8%	1.0%	0.0%	0.0%	0.0%
Inbank_CFP_1_5_LOG	6.0	1.5	2.1%	0.1%	0.2%	0.2%	0.0%	0.0%
O3_0_5_LOG	7.1	0.5	84.0%	5.9%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	8.6	1.0	17.4%	0.2%	1.5%	0.0%	0.0%	0.0%
O3_1_0_LOG	8.9	1.0	50.0%	0.5%	3.6%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	10.4	1.5	10.4%	0.0%	0.4%	1.0%	0.0%	0.0%
Inbank_O3_0_5_LOG_1_5_LOG	11.7	1.5	8.4%	0.0%	0.3%	0.7%	0.0%	0.0%
O3_2_0_LOG	13.7	2.0	3.3%	0.0%	0.1%	0.3%	0.3%	0.0%
SF_0_5_LOG	14.2	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	15.2	2.5	0.7%	0.0%	0.0%	0.1%	0.1%	0.1%
O3_0_5_LOG_SF_1_0_LOG	21.4	1.0	8.4%	0.0%	0.2%	0.0%	0.0%	0.0%
O3_1_0_LOG_SF_1_5_LOG	23.1	1.5	5.0%	0.0%	0.1%	0.4%	0.0%	0.0%
O3_2_0_LOG_SF_2_5_LOG	28.0	2.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	31.9	2.5	100.0%	0.3%	2.5%	7.3%	9.6%	9.9%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.30: Technology Selection for Medium Plants (50,000-99,999) UV90-10B, with pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
CFP_0_5_LOG	1.5	0.5	3.4%	3.4%	0.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	1.9	3.0	90.0%	87.0%	90.0%	90.0%	90.0%	90.0%
Inbank_1_0_LOG	4.5	1.0	10.0%	1.0%	1.0%	0.0%	0.0%	0.0%
Inbank_CFP_1_5_LOG	6.0	1.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_0_5_LOG	7.1	0.5	84.0%	7.3%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	8.6	1.0	2.8%	0.0%	0.3%	0.0%	0.0%	0.0%
O3_1_0_LOG	8.9	1.0	50.0%	0.7%	4.4%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	10.4	1.5	1.7%	0.0%	0.1%	0.2%	0.0%	0.0%
Inbank_O3_0_5_LOG_1_5_LOG	11.7	1.5	8.4%	0.1%	0.4%	0.8%	0.0%	0.0%
O3_2_0_LOG	13.7	2.0	3.3%	0.0%	0.1%	0.3%	0.3%	0.0%
SF_0_5_LOG	14.2	0.5	10.0%	0.1%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	15.2	2.5	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_0_5_LOG_SF_1_0_LOG	21.4	1.0	8.4%	0.0%	0.3%	0.0%	0.0%	0.0%
O3_1_0_LOG_SF_1_5_LOG	23.1	1.5	5.0%	0.0%	0.2%	0.4%	0.0%	0.0%
O3_2_0_LOG_SF_2_5_LOG	28.0	2.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	31.9	2.5	100.0%	0.5%	3.3%	8.2%	9.6%	10.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.31: Technology Selection for Large Plants (100,000-999,999) UV90-10B, no pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
CFP_0_5_LOG	1.8	0.5	20.7%	20.7%	0.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	2.2	3.0	90.0%	71.4%	90.0%	90.0%	90.0%	90.0%
Inbank_1_0_LOG	8.1	1.0	10.0%	0.8%	1.0%	0.0%	0.0%	0.0%
O3_0_5_LOG	9.2	0.5	84.0%	6.0%	0.0%	0.0%	0.0%	0.0%
Inbank_CFP_1_5_LOG	9.9	1.5	2.1%	0.0%	0.2%	0.2%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	11.0	1.0	10.4%	0.1%	0.9%	0.0%	0.0%	0.0%
O3_1_0_LOG	11.9	1.0	50.0%	0.5%	4.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	13.8	1.5	10.4%	0.1%	0.4%	1.0%	0.0%	0.0%
Inbank_O3_0_5_LOG_1_5_LOG	17.3	1.5	8.4%	0.0%	0.3%	0.7%	0.0%	0.0%
SF_0_5_LOG	17.6	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG	20.1	2.0	3.3%	0.0%	0.1%	0.3%	0.3%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	21.9	2.5	0.7%	0.0%	0.0%	0.1%	0.1%	0.1%
O3_0_5_LOG_SF_1_0_LOG	26.8	1.0	8.4%	0.0%	0.3%	0.0%	0.0%	0.0%
O3_1_0_LOG_SF_1_5_LOG	29.5	1.5	5.0%	0.0%	0.1%	0.4%	0.0%	0.0%
O3_2_0_LOG_SF_2_5_LOG	37.7	2.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_0_5_LOG_WC_1_0_LOG	43.8	1.0	8.4%	0.0%	0.2%	0.0%	0.0%	0.0%
O3_1_0_LOG_WC_1_5_LOG	46.6	1.5	5.0%	0.0%	0.1%	0.4%	0.0%	0.0%
MF_UF_2_5_LOG	51.0	2.5	100.0%	0.3%	2.4%	6.9%	9.6%	9.9%
O3_2_0_LOG_WC_2_5_LOG	54.7	2.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%

Note: Total may not add to 100.0% because of rounding.

Exhibit F.32: Technology Selection for Large Plants (100,000-999,999) UV90-10B, with pre-LT2 credits

Note: Total may not add to 100.0% because of rounding.

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
CFP_0_5_LOG	1.8	0.5	4.3%	4.3%	0.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	2.2	3.0	90.0%	86.1%	90.0%	90.0%	90.0%	90.0%
Inbank_1_0_LOG	8.1	1.0	10.0%	1.0%	1.0%	0.0%	0.0%	0.0%
O3_0_5_LOG	9.2	0.5	84.0%	7.2%	0.0%	0.0%	0.0%	0.0%
Inbank_CFP_1_5_LOG	9.9	1.5	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	11.0	1.0	2.1%	0.0%	0.2%	0.0%	0.0%	0.0%
O3_1_0_LOG	11.9	1.0	50.0%	0.7%	4.4%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	13.8	1.5	2.1%	0.0%	0.1%	0.2%	0.0%	0.0%
Inbank_O3_0_5_LOG_1_5_LOG	17.3	1.5	8.4%	0.1%	0.4%	0.8%	0.0%	0.0%
SF_0_5_LOG	17.6	0.5	7.9%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_2_0_LOG	20.1	2.0	3.3%	0.0%	0.1%	0.3%	0.3%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	21.9	2.5	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_0_5_LOG_SF_1_0_LOG	26.8	1.0	6.7%	0.0%	0.3%	0.0%	0.0%	0.0%
O3_1_0_LOG_SF_1_5_LOG	29.5	1.5	4.0%	0.0%	0.1%	0.3%	0.0%	0.0%
O3_2_0_LOG_SF_2_5_LOG	37.7	2.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_0_5_LOG_WC_1_0_LOG	43.8	1.0	8.4%	0.0%	0.3%	0.0%	0.0%	0.0%
O3_1_0_LOG_WC_1_5_LOG	46.6	1.5	5.0%	0.0%	0.2%	0.4%	0.0%	0.0%
MF_UF_2_5_LOG	51.0	2.5	100.0%	0.4%	3.0%	7.8%	9.6%	10.0%
O3_2_0_LOG_WC_2_5_LOG	54.7	2.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%

Exhibit F.33: Technology Selection for Large Plants (≥1,000,000) UV90-10B, no pre-LT2 credits

Note: Total may not add to 100.0% because of rounding.

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
CFP_0_5_LOG	1.5	0.5	20.7%	20.7%	0.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	2.4	3.0	90.0%	71.4%	90.0%	90.0%	90.0%	90.0%
O3_0_5_LOG	10.8	0.5	84.0%	6.7%	0.0%	0.0%	0.0%	0.0%
Inbank_1_0_LOG	11.4	1.0	10.0%	0.1%	1.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	12.3	1.0	10.4%	0.1%	0.9%	0.0%	0.0%	0.0%
Inbank_CFP_1_5_LOG	12.9	1.5	2.1%	0.0%	0.2%	0.2%	0.0%	0.0%
O3_1_0_LOG	14.2	1.0	50.0%	0.5%	4.0%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	15.8	1.5	10.4%	0.1%	0.4%	1.0%	0.0%	0.0%
SF_0_5_LOG	22.0	0.5	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Inbank_O3_0_5_LOG_1_5_LOG	22.2	1.5	8.4%	0.0%	0.3%	0.7%	0.0%	0.0%
O3_2_0_LOG	25.0	2.0	3.3%	0.0%	0.1%	0.3%	0.3%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	26.6	2.5	0.7%	0.0%	0.0%	0.1%	0.1%	0.1%
O3_0_5_LOG_SF_1_0_LOG	32.7	1.0	8.4%	0.0%	0.3%	0.0%	0.0%	0.0%
O3_1_0_LOG_SF_1_5_LOG	36.2	1.5	5.0%	0.0%	0.1%	0.4%	0.0%	0.0%
O3_2_0_LOG_SF_2_5_LOG	47.0	2.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_0_5_LOG_WC_1_0_LOG	54.3	1.0	8.4%	0.0%	0.2%	0.0%	0.0%	0.0%
O3_1_0_LOG_WC_1_5_LOG	57.7	1.5	5.0%	0.0%	0.1%	0.4%	0.0%	0.0%
O3_2_0_LOG_WC_2_5_LOG	68.5	2.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	68.8	2.5	100.0%	0.3%	2.3%	6.9%	9.5%	9.9%

Exhibit F.34: Technology Selection for Large Plants (≥1,000,000) UV90-10B, with pre-LT2 credits

Technology	Relative Cost	Actual Log Credit	Maximum Percent Usage	Percent of Plants Selecting Technology by Bin				
				0.5 Log Bin	1.0 Log Bin	1.5 Log Bin	2.0 Log Bin	2.5 Log Bin
Total	-	-	-	100%	100%	100%	100%	100%
CFP_0_5_LOG	1.5	0.5	4.3%	4.3%	0.0%	0.0%	0.0%	0.0%
UV_3_0_LOG	2.4	3.0	90.0%	86.1%	90.0%	90.0%	90.0%	90.0%
O3_0_5_LOG	10.8	0.5	84.0%	8.0%	0.0%	0.0%	0.0%	0.0%
Inbank_1_0_LOG	11.4	1.0	10.0%	0.2%	1.0%	0.0%	0.0%	0.0%
CFP_O3_0_5_LOG_1_0_LOG	12.3	1.0	2.1%	0.0%	0.2%	0.0%	0.0%	0.0%
Inbank_CFP_1_5_LOG	12.9	1.5	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_1_0_LOG	14.2	1.0	50.0%	0.7%	4.4%	0.0%	0.0%	0.0%
O3_1_0_LOG_CFP_1_5_LOG	15.8	1.5	2.1%	0.0%	0.1%	0.2%	0.0%	0.0%
SF_0_5_LOG	22.0	0.5	7.9%	0.1%	0.0%	0.0%	0.0%	0.0%
Inbank_O3_0_5_LOG_1_5_LOG	22.2	1.5	8.4%	0.1%	0.4%	0.8%	0.0%	0.0%
O3_2_0_LOG	25.0	2.0	3.3%	0.0%	0.1%	0.3%	0.3%	0.0%
O3_2_0_LOG_CFP_2_5_LOG	26.6	2.5	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_0_5_LOG_SF_1_0_LOG	32.7	1.0	6.7%	0.0%	0.3%	0.0%	0.0%	0.0%
O3_1_0_LOG_SF_1_5_LOG	36.2	1.5	4.0%	0.0%	0.1%	0.3%	0.0%	0.0%
O3_2_0_LOG_SF_2_5_LOG	47.0	2.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
O3_0_5_LOG_WC_1_0_LOG	54.3	1.0	8.4%	0.0%	0.3%	0.0%	0.0%	0.0%
O3_1_0_LOG_WC_1_5_LOG	57.7	1.5	5.0%	0.0%	0.2%	0.4%	0.0%	0.0%
O3_2_0_LOG_WC_2_5_LOG	68.5	2.5	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%
MF_UF_2_5_LOG	68.8	2.5	100.0%	0.4%	2.9%	7.8%	9.6%	9.9%

Note: Total may not add to 100.0% because of rounding.

Appendix G
Technology Selection Results

Appendix G presents technology selection results for filtered plants. To estimate technology selections for filtered plants, a number of conditions were used (see Appendix F for a description of the methodology for technology selection). Below is an explanation of the abbreviations used in this appendix, and a brief explanation of each condition.

Regulatory Alternatives

A1 A1 is across-the-board inactivation. All systems are required to achieve a 2.0 log inactivation for *Cryptosporidium*.

A2 A2 is the alternative that requires the most reduction of *Cryptosporidium*. Systems with 0.03-0.1 oocysts/L must achieve a 0.5 log treatment credit for *Cryptosporidium*. Systems with 0.1-1.0 oocysts/L must meet a 1.5 log, and systems with greater than 1.0 oocysts/L must meet a 2.5 log.

A3 A3 is the Preferred Alternative. Under this option, systems that have 0.075-1.0 oocysts/L must achieve a 1.0 log treatment credit for *Cryptosporidium.* Systems with 1.0-3.0 oocysts/L must achieve a 2.0 log, and systems with greater than 3.0 oocysts/L must meet a 2.5 log.

A4 A4 is the alternative that requires the least reduction of *Cryptosporidium*. Systems that have 0.1-1.0 oocysts/L must achieve a 0.5 log treatment credit for *Cryptosporidium* and systems that have greater than 1.0 oocysts/L must achieve 1.0 log.

Occurrence Distribution

ICR Modeling results based on the Information Collection Rule (ICR) were used to predict plant binning

ICRSSL Modeling results based on the Information Collection Rule Supplemental Survey for large systems (ICRSSL) were used to predict plant binning

ICRSSM Modeling results based on the Information Collection Rule Supplemental Survey for medium systems (ICRSSM) were used to predict plant binning

High Modeling results based on the upper, 95th percentile, limit were used to predict binning for the high-case scenario for each occurrence distribution

Low Modeling results based on the lower, 5th percentile, limit were used to predict binning for the low-case scenario for each occurrence distribution

Population Size Categories

S1	0 - <100
S2	100 - <500
S3	500 - <1,000
S4	1,000 - <3,300
S5	3,300 - <10,000
M1	10,000- <50,000
M2	50,000- <100,000
L1	100,000 - <1,000,000
L2	≥ 1,000,00

Sensitivity Analysis

The technology selection forecasts include sensitivity analyses that assume a high source water bromide level (summarized in section 6.10).

UV90-10 UV maximum usage = 90 percent, Bromate maximum contaminant level (MCL) = 10 parts per billion (ppb), No additional influent bromide

UV90-10B UV maximum usage = 90 percent, Bromate MCL = 10 ppb, Additional influent Bromide = 50 ppb

Exhibit G.1: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A1
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	306	3	273	0	0	3	0	0	0	0	28	0
VS2	691	6	616	0	0	7	0	0	0	0	62	0
S1	414	4	369	0	0	4	0	0	0	0	37	0
S2	1,052	9	94	0	0	11	0	0	0	0	938	0
S3	1,067	10	95	0	0	5	0	0	6	0	952	0
M1	1,172	0	0	5	6	46	5	5	60	0	1,046	0
M2	323	0	0	1	2	11	1	2	17	1	287	0
L1	382	0	0	2	2	13	2	3	20	1	339	1
L2	64	0	0	0	0	2	0	1	3	0	56	0
Total Plants	5,470	32	1,446	9	10	101	9	10	106	2	3,745	1

Note: Sum of columns B through M may not add to column A.

Exhibit G.2: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A1
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	184	2	164	0	0	2	0	0	0	0	17	0
VS2	281	3	250	0	0	3	0	0	0	0	25	0
S1	95	1	85	0	0	1	0	0	0	0	9	0
S2	86	1	8	0	0	1	0	0	0	0	77	0
S3	24	0	2	0	0	0	0	0	0	0	21	0
M1	5	0	0	0	0	0	0	0	0	0	4	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	1	0	0	0	0	0	0	0	0	0	1	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	676	6	509	0	0	7	0	0	0	0	154	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.3: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A1
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	1,273	11	1,134	0	0	13	0	0	0	0	115	0
VS2	610	5	544	0	0	6	0	0	0	0	55	0
S1	107	1	95	0	0	1	0	0	0	0	10	0
S2	67	1	6	0	0	1	0	0	0	0	60	0
S3	19	0	2	0	0	0	0	0	0	0	17	0
M1	12	0	0	0	0	0	0	0	1	0	11	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	1	0	0	0	0	0	0	0	0	0	1	0
L2	2	0	0	0	0	0	0	0	0	0	2	0
Total Plants	2,091	19	1,781	0	0	21	0	0	1	0	269	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.4: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A1
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	306	3	273	0	0	3	0	0	0	0	28	0
VS2	691	6	616	0	0	7	0	0	0	0	62	0
S1	414	4	369	0	0	4	0	0	0	0	37	0
S2	1,052	9	94	0	0	11	0	0	0	0	938	0
S3	1,067	10	95	0	0	10	0	0	0	0	952	0
M1	1,169	0	0	2	6	103	5	3	4	0	1,046	0
M2	321	0	0	0	2	27	1	2	1	1	287	0
L1	381	0	0	1	2	31	2	3	1	1	339	1
L2	63	0	0	0	0	5	0	0	0	0	56	0
Total Plants	5,464	32	1,446	3	10	202	9	8	7	2	3,745	1

Note: Sum of columns B through M may not add to column A.

Exhibit G.5: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A1
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	184	2	164	0	0	2	0	0	0	0	17	0
VS2	281	3	250	0	0	3	0	0	0	0	25	0
S1	95	1	85	0	0	1	0	0	0	0	9	0
S2	86	1	8	0	0	1	0	0	0	0	77	0
S3	24	0	2	0	0	0	0	0	0	0	21	0
M1	5	0	0	0	0	0	0	0	0	0	4	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	1	0	0	0	0	0	0	0	0	0	1	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	676	6	509	0	0	7	0	0	0	0	154	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.6: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A1
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	1,273	11	1,134	0	0	13	0	0	0	0	115	0
VS2	610	5	544	0	0	6	0	0	0	0	55	0
S1	107	1	95	0	0	1	0	0	0	0	10	0
S2	67	1	6	0	0	1	0	0	0	0	60	0
S3	19	0	2	0	0	0	0	0	0	0	17	0
M1	12	0	0	0	0	1	0	0	0	0	11	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	1	0	0	0	0	0	0	0	0	0	1	0
L2	2	0	0	0	0	0	0	0	0	0	2	0
Total Plants	2,091	19	1,781	0	0	22	0	0	0	0	269	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.7: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICR_Low
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	121	54	44	0	0	2	0	0	0	0	20	0
VS2	273	122	100	0	0	5	0	0	0	0	45	0
S1	163	73	60	0	0	3	0	0	0	0	27	0
S2	415	186	15	0	0	7	1	0	0	0	206	0
S3	421	189	15	0	0	5	1	1	1	0	209	0
M1	426	0	0	24	4	9	8	11	9	0	361	0
M2	117	0	0	7	1	2	2	3	3	0	99	0
L1	136	0	0	7	1	2	3	4	3	0	115	0
L2	23	0	0	1	0	0	0	1	1	0	19	0
Total Plants	2,095	625	236	39	6	36	16	19	16	1	1,101	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.8: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICR_Low
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	73	33	27	0	0	1	0	0	0	0	12	0
VS2	111	50	41	0	0	2	0	0	0	0	18	0
S1	38	17	14	0	0	1	0	0	0	0	6	0
S2	34	15	1	0	0	1	0	0	0	0	17	0
S3	9	4	0	0	0	0	0	0	0	0	5	0
M1	2	0	0	0	0	0	0	0	0	0	2	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	267	119	83	0	0	5	0	0	0	0	60	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.9: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICR_Low
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	503	226	185	0	0	9	0	0	0	0	83	0
VS2	241	108	89	0	0	4	0	0	0	0	40	0
S1	42	19	16	0	0	1	0	0	0	0	7	0
S2	26	12	1	0	0	0	0	0	0	0	13	0
S3	8	3	0	0	0	0	0	0	0	0	4	0
M1	4	0	0	0	0	0	0	0	0	0	4	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	1	0
Total Plants	825	368	290	0	0	15	0	0	0	0	151	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.10: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICR_Low
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	121	54	44	0	0	2	0	0	0	0	20	0
VS2	273	122	100	0	0	5	0	0	0	0	45	0
S1	163	73	60	0	0	3	0	0	0	0	27	0
S2	415	186	15	0	0	7	1	0	0	0	206	0
S3	421	189	15	0	0	6	1	1	0	0	209	0
M1	425	0	0	22	4	21	8	8	1	0	361	0
M2	117	0	0	6	1	5	2	2	0	0	99	0
L1	136	0	0	7	1	6	3	3	0	0	115	0
L2	23	0	0	1	0	1	1	0	0	0	19	0
Total Plants	2,094	625	236	37	6	56	16	14	1	1	1,101	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.11: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICR_Low
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	73	33	27	0	0	1	0	0	0	0	12	0
VS2	111	50	41	0	0	2	0	0	0	0	18	0
S1	38	17	14	0	0	1	0	0	0	0	6	0
S2	34	15	1	0	0	1	0	0	0	0	17	0
S3	9	4	0	0	0	0	0	0	0	0	5	0
M1	2	0	0	0	0	0	0	0	0	0	2	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	267	119	83	0	0	5	0	0	0	0	60	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.12: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICR_Low
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	503	226	185	0	0	9	0	0	0	0	83	0
VS2	241	108	89	0	0	4	0	0	0	0	40	0
S1	42	19	16	0	0	1	0	0	0	0	7	0
S2	26	12	1	0	0	0	0	0	0	0	13	0
S3	8	3	0	0	0	0	0	0	0	0	4	0
M1	4	0	0	0	0	0	0	0	0	0	4	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	1	0
Total Plants	825	368	290	0	0	15	0	0	0	0	151	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.13: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	127	54	47	0	0	3	0	0	0	0	23	0
VS2	285	122	106	0	0	6	0	0	0	0	52	0
S1	171	73	63	0	0	3	0	0	0	0	31	0
S2	435	186	16	0	0	8	1	0	0	0	224	0
S3	441	188	16	0	0	6	1	1	1	0	227	0
M1	448	0	0	23	4	10	8	11	10	0	381	0
M2	123	0	0	6	1	3	2	3	3	0	104	0
L1	144	0	0	7	1	3	3	4	3	0	122	0
L2	24	0	0	1	0	0	0	1	1	0	20	0
Total Plants	2,197	623	249	39	6	42	16	20	18	1	1,185	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.14: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	76	32	28	0	0	2	0	0	0	0	14	0
VS2	116	50	43	0	0	2	0	0	0	0	21	0
S1	39	17	15	0	0	1	0	0	0	0	7	0
S2	36	15	1	0	0	1	0	0	0	0	18	0
S3	10	4	0	0	0	0	0	0	0	0	5	0
M1	2	0	0	0	0	0	0	0	0	0	2	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	279	118	88	0	0	5	0	0	0	0	67	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.15: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	526	225	195	0	0	11	0	0	0	0	95	0
VS2	252	108	94	0	0	5	0	0	0	0	46	0
S1	44	19	16	0	0	1	0	0	0	0	8	0
S2	28	12	1	0	0	0	0	0	0	0	14	0
S3	8	3	0	0	0	0	0	0	0	0	4	0
M1	5	0	0	0	0	0	0	0	0	0	4	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	1	0
Total Plants	863	366	306	0	0	17	0	0	0	0	172	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.16: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	127	54	47	0	0	3	0	0	0	0	23	0
VS2	285	122	106	0	0	6	0	0	0	0	52	0
S1	171	73	63	0	0	3	0	0	0	0	31	0
S2	435	186	16	0	0	8	1	0	0	0	224	0
S3	441	188	16	0	0	7	1	1	0	0	227	0
M1	447	0	0	22	4	23	8	8	1	0	381	0
M2	123	0	0	6	1	6	2	2	0	0	104	0
L1	143	0	0	7	1	7	3	3	0	0	122	0
L2	24	0	0	1	0	1	1	0	0	0	20	0
Total Plants	2,195	623	249	36	7	63	16	14	1	1	1,185	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.17: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	76	32	28	0	0	2	0	0	0	0	14	0
VS2	116	50	43	0	0	2	0	0	0	0	21	0
S1	39	17	15	0	0	1	0	0	0	0	7	0
S2	36	15	1	0	0	1	0	0	0	0	18	0
S3	10	4	0	0	0	0	0	0	0	0	5	0
M1	2	0	0	0	0	0	0	0	0	0	2	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	279	118	88	0	0	6	0	0	0	0	67	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.18: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	526	225	195	0	0	11	0	0	0	0	95	0
VS2	252	108	94	0	0	5	0	0	0	0	46	0
S1	44	19	16	0	0	1	0	0	0	0	8	0
S2	28	12	1	0	0	0	0	0	0	0	14	0
S3	8	3	0	0	0	0	0	0	0	0	4	0
M1	5	0	0	0	0	0	0	0	0	0	4	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	1	0
Total Plants	863	366	306	0	0	17	0	0	0	0	172	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.19: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICR_High
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	144	62	53	0	0	3	0	0	0	0	26	0
VS2	325	139	119	0	0	7	0	0	0	0	60	0
S1	194	84	71	0	0	4	0	0	0	0	36	0
S2	494	212	18	0	0	9	1	0	0	0	254	0
S3	502	215	18	0	0	7	1	1	1	0	257	0
M1	508	0	0	27	4	12	9	13	11	0	432	0
M2	140	0	0	7	1	3	3	4	3	0	118	0
L1	163	0	0	8	1	3	3	4	4	0	138	0
L2	27	0	0	1	0	1	1	1	1	0	23	0
Total Plants	2,497	713	279	45	7	48	18	22	20	1	1,344	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.20: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICR_High
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	86	37	32	0	0	2	0	0	0	0	16	0
VS2	132	57	48	0	0	3	0	0	0	0	24	0
S1	45	19	16	0	0	1	0	0	0	0	8	0
S2	40	17	1	0	0	1	0	0	0	0	21	0
S3	11	5	0	0	0	0	0	0	0	0	6	0
M1	2	0	0	0	0	0	0	0	0	0	2	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	317	135	98	0	0	6	0	0	0	0	77	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.21: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICR_High
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	598	257	219	0	0	12	0	0	0	0	110	0
VS2	287	123	105	0	0	6	0	0	0	0	53	0
S1	50	22	18	0	0	1	0	0	0	0	9	0
S2	31	14	1	0	0	1	0	0	0	0	16	0
S3	9	4	0	0	0	0	0	0	0	0	5	0
M1	5	0	0	0	0	0	0	0	0	0	4	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	1	0
Total Plants	982	419	344	0	0	20	0	0	0	0	198	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.22: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICR_High
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	144	62	53	0	0	3	0	0	0	0	26	0
VS2	325	139	119	0	0	7	0	0	0	0	60	0
S1	194	84	71	0	0	4	0	0	0	0	36	0
S2	494	212	18	0	0	9	1	0	0	0	254	0
S3	501	215	18	0	0	8	1	1	0	0	257	0
M1	507	0	0	26	5	26	9	9	1	0	432	0
M2	139	0	0	7	1	7	3	3	0	0	118	0
L1	163	0	0	8	1	7	3	3	0	0	138	0
L2	27	0	0	1	0	1	1	1	0	0	23	0
Total Plants	2,495	713	279	42	7	72	18	16	2	1	1,344	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.23: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICR_High
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	86	37	32	0	0	2	0	0	0	0	16	0
VS2	132	57	48	0	0	3	0	0	0	0	24	0
S1	45	19	16	0	0	1	0	0	0	0	8	0
S2	40	17	1	0	0	1	0	0	0	0	21	0
S3	11	5	0	0	0	0	0	0	0	0	6	0
M1	2	0	0	0	0	0	0	0	0	0	2	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	317	135	98	0	0	6	0	0	0	0	77	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.24: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICR_High
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	598	257	219	0	0	12	0	0	0	0	110	0
VS2	287	123	105	0	0	6	0	0	0	0	53	0
S1	50	22	18	0	0	1	0	0	0	0	9	0
S2	31	14	1	0	0	1	0	0	0	0	16	0
S3	9	4	0	0	0	0	0	0	0	0	5	0
M1	5	0	0	0	0	0	0	0	0	0	4	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	1	0
Total Plants	982	419	344	0	0	20	0	0	0	0	198	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.25: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICR_Low
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	98	73	12	0	0	1	0	0	0	0	12	0
VS2	222	164	28	0	0	3	0	0	0	0	27	0
S1	133	98	17	0	0	2	0	0	0	0	16	0
S2	338	249	4	0	0	4	1	0	0	0	80	0
S3	342	253	4	0	0	2	1	1	1	0	81	0
M1	367	0	0	9	4	4	15	9	4	0	322	0
M2	101	0	0	2	1	1	4	3	1	0	88	0
L1	117	0	0	3	1	1	5	3	1	0	102	0
L2	19	0	0	1	0	0	1	0	0	0	17	0
Total Plants	1,738	836	65	15	6	18	26	17	8	0	746	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.26: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICR_Low
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	59	44	7	0	0	1	0	0	0	0	7	0
VS2	90	67	11	0	0	1	0	0	0	0	11	0
S1	31	23	4	0	0	0	0	0	0	0	4	0
S2	28	20	0	0	0	0	0	0	0	0	7	0
S3	8	6	0	0	0	0	0	0	0	0	2	0
M1	2	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	217	159	23	0	0	3	0	0	0	0	32	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.27: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICR_Low
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	409	302	51	0	0	6	0	0	0	0	50	0
VS2	196	144	24	0	0	3	0	0	0	0	24	0
S1	34	25	4	0	0	0	0	0	0	0	4	0
S2	22	16	0	0	0	0	0	0	0	0	5	0
S3	6	5	0	0	0	0	0	0	0	0	1	0
M1	4	0	0	0	0	0	0	0	0	0	3	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	1	0
Total Plants	671	492	80	0	0	9	0	0	0	0	90	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.28: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICR_Low
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	98	73	12	0	0	1	0	0	0	0	12	0
VS2	222	164	28	0	0	3	0	0	0	0	27	0
S1	133	98	17	0	0	2	0	0	0	0	16	0
S2	338	249	4	0	0	4	1	0	0	0	80	0
S3	342	253	4	0	0	3	1	1	0	0	81	0
M1	367	0	0	8	4	11	14	7	0	0	322	0
M2	101	0	0	2	1	3	4	2	0	0	88	0
L1	117	0	0	3	1	3	5	2	0	0	102	0
L2	19	0	0	0	0	1	1	0	0	0	17	0
Total Plants	1,738	836	65	14	6	30	26	13	1	1	746	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.29: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICR_Low
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	59	44	7	0	0	1	0	0	0	0	7	0
VS2	90	67	11	0	0	1	0	0	0	0	11	0
S1	31	23	4	0	0	0	0	0	0	0	4	0
S2	28	20	0	0	0	0	0	0	0	0	7	0
S3	8	6	0	0	0	0	0	0	0	0	2	0
M1	2	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	217	159	23	0	0	3	0	0	0	0	32	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.30: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICR_Low
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	409	302	51	0	0	6	0	0	0	0	50	0
VS2	196	144	24	0	0	3	0	0	0	0	24	0
S1	34	25	4	0	0	0	0	0	0	0	4	0
S2	22	16	0	0	0	0	0	0	0	0	5	0
S3	6	5	0	0	0	0	0	0	0	0	1	0
M1	4	0	0	0	0	0	0	0	0	0	3	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	1	0
Total Plants	671	492	80	0	0	9	0	0	0	0	90	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.31: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	106	74	15	0	0	2	0	0	0	0	15	0
VS2	239	168	34	0	0	4	0	0	0	0	33	0
S1	143	100	21	0	0	2	0	0	0	0	20	0
S2	363	255	5	0	0	5	1	0	0	0	97	0
S3	368	259	5	0	0	3	1	1	1	0	98	0
M1	396	0	0	9	4	5	15	10	5	0	348	0
M2	109	0	0	2	1	1	4	3	2	0	95	0
L1	126	0	0	3	1	1	5	3	2	0	110	0
L2	21	0	0	1	0	0	1	1	0	0	18	0
Total Plants	1,871	857	81	16	6	23	27	17	10	0	834	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.32: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	63	45	9	0	0	1	0	0	0	0	9	0
VS2	97	68	14	0	0	1	0	0	0	0	13	0
S1	33	23	5	0	0	1	0	0	0	0	5	0
S2	30	21	0	0	0	0	0	0	0	0	8	0
S3	8	6	0	0	0	0	0	0	0	0	2	0
M1	2	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	233	163	28	0	0	3	0	0	0	0	38	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.33: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	440	309	63	0	0	7	0	0	0	0	60	0
VS2	211	148	30	0	0	3	0	0	0	0	29	0
S1	37	26	5	0	0	1	0	0	0	0	5	0
S2	23	16	0	0	0	0	0	0	0	0	6	0
S3	7	5	0	0	0	0	0	0	0	0	2	0
M1	4	0	0	0	0	0	0	0	0	0	4	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	1	0
Total Plants	722	504	100	0	0	11	0	0	0	0	107	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.34: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	106	74	15	0	0	2	0	0	0	0	15	0
VS2	239	168	34	0	0	4	0	0	0	0	33	0
S1	143	100	21	0	0	2	0	0	0	0	20	0
S2	363	255	5	0	0	5	1	0	0	0	97	0
S3	368	259	5	0	0	4	1	1	0	0	98	0
M1	396	0	0	9	4	13	15	7	0	0	348	0
M2	109	0	0	2	1	3	4	2	0	0	95	0
L1	126	0	0	3	1	4	5	3	0	0	110	0
L2	21	0	0	0	0	1	1	0	0	0	18	0
Total Plants	1,871	857	81	15	7	37	26	13	1	1	834	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.35: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	63	45	9	0	0	1	0	0	0	0	9	0
VS2	97	68	14	0	0	1	0	0	0	0	13	0
S1	33	23	5	0	0	1	0	0	0	0	5	0
S2	30	21	0	0	0	0	0	0	0	0	8	0
S3	8	6	0	0	0	0	0	0	0	0	2	0
M1	2	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	233	163	28	0	0	3	0	0	0	0	38	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.36: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	440	309	63	0	0	7	0	0	0	0	60	0
VS2	211	148	30	0	0	3	0	0	0	0	29	0
S1	37	26	5	0	0	1	0	0	0	0	5	0
S2	23	16	0	0	0	0	0	0	0	0	6	0
S3	7	5	0	0	0	0	0	0	0	0	2	0
M1	4	0	0	0	0	0	0	0	0	0	4	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	1	0
Total Plants	722	504	100	0	0	11	0	0	0	0	107	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.37: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICR_High
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	118	83	17	0	0	2	0	0	0	0	17	0
VS2	267	187	38	0	0	4	0	0	0	0	37	0
S1	160	112	23	0	0	2	0	0	0	0	22	0
S2	407	285	6	0	0	5	1	0	0	0	109	0
S3	412	289	6	0	0	3	1	2	1	0	111	0
M1	443	0	0	10	4	6	17	11	6	0	389	0
M2	122	0	0	3	1	2	5	3	2	0	107	0
L1	141	0	0	4	1	2	5	3	2	0	124	0
L2	24	0	0	1	0	0	1	1	0	0	21	0
Total Plants	2,094	956	90	17	7	26	30	19	11	0	937	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.38: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICR_High
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	71	50	10	0	0	1	0	0	0	0	10	0
VS2	109	76	16	0	0	2	0	0	0	0	15	0
S1	37	26	5	0	0	1	0	0	0	0	5	0
S2	33	23	0	0	0	0	0	0	0	0	9	0
S3	9	6	0	0	0	0	0	0	0	0	2	0
M1	2	0	0	0	0	0	0	0	0	0	2	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	261	181	32	0	0	4	0	0	0	0	44	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.39: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICR_High
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	492	345	70	0	0	8	0	0	0	0	69	0
VS2	236	165	34	0	0	4	0	0	0	0	33	0
S1	41	29	6	0	0	1	0	0	0	0	6	0
S2	26	18	0	0	0	0	0	0	0	0	7	0
S3	7	5	0	0	0	0	0	0	0	0	2	0
M1	5	0	0	0	0	0	0	0	0	0	4	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	1	0
Total Plants	808	562	111	0	0	12	0	0	0	0	122	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.40: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICR_High
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	118	83	17	0	0	2	0	0	0	0	17	0
VS2	267	187	38	0	0	4	0	0	0	0	37	0
S1	160	112	23	0	0	2	0	0	0	0	22	0
S2	407	285	6	0	0	5	1	0	0	0	109	0
S3	412	289	6	0	0	4	1	1	0	0	111	0
M1	443	0	0	10	4	15	16	8	1	0	389	0
M2	122	0	0	3	1	4	5	2	0	0	107	0
L1	141	0	0	3	1	4	5	3	0	0	124	0
L2	23	0	0	1	0	1	1	0	0	0	21	0
Total Plants	2,093	956	90	16	7	42	29	14	1	1	937	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.41: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICR_High
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	71	50	10	0	0	1	0	0	0	0	10	0
VS2	109	76	16	0	0	2	0	0	0	0	15	0
S1	37	26	5	0	0	1	0	0	0	0	5	0
S2	33	23	0	0	0	0	0	0	0	0	9	0
S3	9	6	0	0	0	0	0	0	0	0	2	0
M1	2	0	0	0	0	0	0	0	0	0	2	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	261	181	32	0	0	4	0	0	0	0	44	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.42: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICR_High
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	492	345	70	0	0	8	0	0	0	0	69	0
VS2	236	165	34	0	0	4	0	0	0	0	33	0
S1	41	29	6	0	0	1	0	0	0	0	6	0
S2	26	18	0	0	0	0	0	0	0	0	7	0
S3	7	5	0	0	0	0	0	0	0	0	2	0
M1	5	0	0	0	0	0	0	0	0	0	4	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	1	0
Total Plants	808	562	111	0	0	13	0	0	0	0	122	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.43: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICR_Low
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	60	54	0	0	0	1	0	0	0	0	5	0
VS2	136	123	0	0	0	1	0	0	0	0	12	0
S1	82	74	0	0	0	1	0	0	0	0	7	0
S2	208	187	0	0	0	1	1	0	0	0	19	0
S3	211	190	0	0	0	0	1	0	0	0	19	0
M1	182	0	0	26	2	0	10	3	0	0	140	0
M2	50	0	0	7	1	0	3	1	0	0	38	0
L1	56	0	0	8	1	0	3	1	0	0	43	0
L2	9	0	0	1	0	0	1	0	0	0	7	0
Total Plants	994	627	0	43	3	4	20	5	1	0	292	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.44: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICR_Low
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	36	33	0	0	0	0	0	0	0	0	3	0
VS2	55	50	0	0	0	1	0	0	0	0	5	0
S1	19	17	0	0	0	0	0	0	0	0	2	0
S2	17	15	0	0	0	0	0	0	0	0	2	0
S3	5	4	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	133	119	0	0	0	1	0	0	0	0	13	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.45: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICR_Low
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	0	0	0	0	0	0	0	0	0	0	0	0
VS2	0	0	0	0	0	0	0	0	0	0	0	0
S1	0	0	0	0	0	0	0	0	0	0	0	0
S2	0	0	0	0	0	0	0	0	0	0	0	0
S3	0	0	0	0	0	0	0	0	0	0	0	0
M1	0	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	0	0	0	0	0	0	0	0	0	0	0	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.46: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICR_Low
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	60	54	0	0	0	1	0	0	0	0	5	0
VS2	136	123	0	0	0	1	0	0	0	0	12	0
S1	82	74	0	0	0	1	0	0	0	0	7	0
S2	208	187	0	0	0	1	1	0	0	0	19	0
S3	211	190	0	0	0	0	1	0	0	0	19	0
M1	182	0	0	26	2	1	10	2	0	0	140	0
M2	50	0	0	7	1	0	3	1	0	0	38	0
L1	56	0	0	8	1	0	3	1	0	0	43	0
L2	9	0	0	1	0	0	1	0	0	0	7	0
Total Plants	995	627	0	43	3	6	20	4	0	0	292	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.47: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICR_Low
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	36	33	0	0	0	0	0	0	0	0	3	0
VS2	55	50	0	0	0	1	0	0	0	0	5	0
S1	19	17	0	0	0	0	0	0	0	0	2	0
S2	17	15	0	0	0	0	0	0	0	0	2	0
S3	5	4	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	133	119	0	0	0	1	0	0	0	0	13	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.48: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICR_Low
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	0	0	0	0	0	0	0	0	0	0	0	0
VS2	0	0	0	0	0	0	0	0	0	0	0	0
S1	0	0	0	0	0	0	0	0	0	0	0	0
S2	0	0	0	0	0	0	0	0	0	0	0	0
S3	0	0	0	0	0	0	0	0	0	0	0	0
M1	0	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	0	0	0	0	0	0	0	0	0	0	0	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.49: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	67	60	0	0	0	1	0	0	0	0	6	0
VS2	151	135	0	0	0	2	0	0	0	0	14	0
S1	90	81	0	0	0	1	0	0	0	0	8	0
S2	229	206	0	0	0	1	2	0	0	0	21	0
S3	232	209	0	0	0	0	2	1	0	0	21	0
M1	204	0	0	27	2	0	12	3	0	0	159	0
M2	56	0	0	8	1	0	3	1	0	0	44	0
L1	63	0	0	8	1	0	4	1	0	0	49	0
L2	10	0	0	1	0	0	1	0	0	0	8	0
Total Plants	1,103	692	0	45	3	4	22	6	1	0	329	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.50: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	40	36	0	0	0	0	0	0	0	0	4	0
VS2	61	55	0	0	0	1	0	0	0	0	6	0
S1	21	19	0	0	0	0	0	0	0	0	2	0
S2	19	17	0	0	0	0	0	0	0	0	2	0
S3	5	5	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	147	131	0	0	0	1	0	0	0	0	14	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.51: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	277	250	0	0	0	3	0	0	0	0	25	0
VS2	133	120	0	0	0	1	0	0	0	0	12	0
S1	23	21	0	0	0	0	0	0	0	0	2	0
S2	15	13	0	0	0	0	0	0	0	0	1	0
S3	4	4	0	0	0	0	0	0	0	0	0	0
M1	2	0	0	0	0	0	0	0	0	0	2	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	455	407	0	0	0	4	0	0	0	0	43	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.52: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	67	60	0	0	0	1	0	0	0	0	6	0
VS2	151	135	0	0	0	2	0	0	0	0	14	0
S1	90	81	0	0	0	1	0	0	0	0	8	0
S2	229	206	0	0	0	1	1	0	0	0	21	0
S3	232	209	0	0	0	0	1	0	0	0	21	0
M1	204	0	0	28	2	2	11	2	0	0	159	0
M2	56	0	0	8	1	0	3	1	0	0	44	0
L1	63	0	0	8	1	0	4	1	0	0	49	0
L2	10	0	0	1	0	0	1	0	0	0	8	0
Total Plants	1,103	692	0	45	3	7	21	5	0	0	329	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.53: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	40	36	0	0	0	0	0	0	0	0	4	0
VS2	61	55	0	0	0	1	0	0	0	0	6	0
S1	21	19	0	0	0	0	0	0	0	0	2	0
S2	19	17	0	0	0	0	0	0	0	0	2	0
S3	5	5	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	147	131	0	0	0	1	0	0	0	0	14	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.54: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICR
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	277	250	0	0	0	3	0	0	0	0	25	0
VS2	133	120	0	0	0	1	0	0	0	0	12	0
S1	23	21	0	0	0	0	0	0	0	0	2	0
S2	15	13	0	0	0	0	0	0	0	0	1	0
S3	4	4	0	0	0	0	0	0	0	0	0	0
M1	2	0	0	0	0	0	0	0	0	0	2	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	455	407	0	0	0	4	0	0	0	0	43	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.55: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICR_High
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	75	67	0	0	0	1	0	0	0	0	7	0
VS2	169	152	0	0	0	2	0	0	0	0	15	0
S1	101	91	0	0	0	1	0	0	0	0	9	0
S2	257	232	0	0	0	1	2	0	0	0	23	0
S3	261	235	0	0	0	0	2	1	0	0	23	0
M1	230	0	0	31	2	0	13	4	1	0	179	0
M2	63	0	0	8	1	0	4	1	0	0	49	0
L1	71	0	0	9	1	0	4	1	0	0	55	0
L2	12	0	0	2	0	0	1	0	0	0	9	0
Total Plants	1,239	777	0	50	4	5	25	7	1	0	371	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.56: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICR_High
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	45	40	0	0	0	0	0	0	0	0	4	0
VS2	69	62	0	0	0	1	0	0	0	0	6	0
S1	23	21	0	0	0	0	0	0	0	0	2	0
S2	21	19	0	0	0	0	0	0	0	0	2	0
S3	6	5	0	0	0	0	0	0	0	0	1	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	165	148	0	0	0	1	0	0	0	0	16	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.57: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICR_High
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	0	0	0	0	0	0	0	0	0	0	0	0
VS2	0	0	0	0	0	0	0	0	0	0	0	0
S1	0	0	0	0	0	0	0	0	0	0	0	0
S2	0	0	0	0	0	0	0	0	0	0	0	0
S3	0	0	0	0	0	0	0	0	0	0	0	0
M1	0	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	0	0	0	0	0	0	0	0	0	0	0	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.58: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICR_High
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	75	67	0	0	0	1	0	0	0	0	7	0
VS2	169	152	0	0	0	2	0	0	0	0	15	0
S1	101	91	0	0	0	1	0	0	0	0	9	0
S2	257	232	0	0	0	1	2	0	0	0	23	0
S3	261	235	0	0	0	0	2	0	0	0	23	0
M1	230	0	0	31	2	2	13	3	0	0	179	0
M2	63	0	0	8	1	0	4	1	0	0	49	0
L1	71	0	0	9	1	0	4	1	0	0	55	0
L2	12	0	0	2	0	0	1	0	0	0	9	0
Total Plants	1,240	777	0	50	4	8	24	5	0	0	371	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.59: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICR_High
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	45	40	0	0	0	0	0	0	0	0	4	0
VS2	69	62	0	0	0	1	0	0	0	0	6	0
S1	23	21	0	0	0	0	0	0	0	0	2	0
S2	21	19	0	0	0	0	0	0	0	0	2	0
S3	6	5	0	0	0	0	0	0	0	0	1	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	165	148	0	0	0	1	0	0	0	0	16	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.60: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICR_High
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	0	0	0	0	0	0	0	0	0	0	0	0
VS2	0	0	0	0	0	0	0	0	0	0	0	0
S1	0	0	0	0	0	0	0	0	0	0	0	0
S2	0	0	0	0	0	0	0	0	0	0	0	0
S3	0	0	0	0	0	0	0	0	0	0	0	0
M1	0	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	0	0	0	0	0	0	0	0	0	0	0	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.61: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICRSSL_Low
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	89	58	21	0	0	1	0	0	0	0	8	0
VS2	200	131	48	0	0	2	0	0	0	0	19	0
S1	120	79	29	0	0	1	0	0	0	0	11	0
S2	305	200	7	0	0	2	1	0	0	0	94	0
S3	309	203	7	0	0	1	1	1	1	0	96	0
M1	285	0	0	31	3	3	10	7	4	0	228	0
M2	78	0	0	8	1	1	3	2	1	0	62	0
L1	89	0	0	9	1	1	3	2	1	0	72	0
L2	15	0	0	2	0	0	1	0	0	0	12	0
Total Plants	1,491	672	113	51	5	11	19	12	7	0	602	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.62: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSL_Low
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	53	35	13	0	0	1	0	0	0	0	5	0
VS2	82	53	20	0	0	1	0	0	0	0	8	0
S1	28	18	7	0	0	0	0	0	0	0	3	0
S2	25	16	1	0	0	0	0	0	0	0	8	0
S3	7	4	0	0	0	0	0	0	0	0	2	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	196	127	40	0	0	2	0	0	0	0	26	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.63: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSL_Low
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	369	242	89	0	0	4	0	0	0	0	34	0
VS2	177	116	42	0	0	2	0	0	0	0	17	0
S1	31	20	7	0	0	0	0	0	0	0	3	0
S2	19	13	0	0	0	0	0	0	0	0	6	0
S3	6	4	0	0	0	0	0	0	0	0	2	0
M1	3	0	0	0	0	0	0	0	0	0	2	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	606	395	139	0	0	6	0	0	0	0	65	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.64: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSL_Low
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	89	58	21	0	0	1	0	0	0	0	8	0
VS2	200	131	48	0	0	2	0	0	0	0	19	0
S1	120	79	29	0	0	1	0	0	0	0	11	0
S2	305	200	7	0	0	2	1	0	0	0	94	0
S3	309	203	7	0	0	1	1	0	0	0	96	0
M1	284	0	0	30	3	8	10	5	0	0	228	0
M2	78	0	0	8	1	2	3	1	0	0	62	0
L1	89	0	0	9	1	2	3	2	0	0	72	0
L2	15	0	0	2	0	0	1	0	0	0	12	0
Total Plants	1,490	672	113	50	5	20	19	8	1	1	602	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.65: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSL_Low
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	53	35	13	0	0	1	0	0	0	0	5	0
VS2	82	53	20	0	0	1	0	0	0	0	8	0
S1	28	18	7	0	0	0	0	0	0	0	3	0
S2	25	16	1	0	0	0	0	0	0	0	8	0
S3	7	4	0	0	0	0	0	0	0	0	2	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	196	127	40	0	0	2	0	0	0	0	26	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.66: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSL_Low
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	369	242	89	0	0	4	0	0	0	0	34	0
VS2	177	116	42	0	0	2	0	0	0	0	17	0
S1	31	20	7	0	0	0	0	0	0	0	3	0
S2	19	13	0	0	0	0	0	0	0	0	6	0
S3	6	4	0	0	0	0	0	0	0	0	2	0
M1	3	0	0	0	0	0	0	0	0	0	2	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	606	395	139	0	0	6	0	0	0	0	65	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.67: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICRSSL
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	105	66	28	0	0	1	0	0	0	0	10	0
VS2	237	148	63	0	0	3	0	0	0	0	23	0
S1	142	89	38	0	0	2	0	0	0	0	14	0
S2	361	225	10	0	0	2	2	0	0	0	122	0
S3	366	228	10	0	0	1	2	1	1	0	124	0
M1	343	0	0	34	3	4	11	8	5	0	277	0
M2	94	0	0	9	1	1	3	2	1	0	76	0
L1	108	0	0	10	1	1	4	3	2	0	88	0
L2	18	0	0	2	0	0	1	0	0	0	15	0
Total Plants	1,773	755	149	55	5	14	21	15	9	0	748	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.68: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSL
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	63	39	17	0	0	1	0	0	0	0	6	0
VS2	96	60	26	0	0	1	0	0	0	0	9	0
S1	33	20	9	0	0	0	0	0	0	0	3	0
S2	30	18	1	0	0	0	0	0	0	0	10	0
S3	8	5	0	0	0	0	0	0	0	0	3	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	232	143	52	0	0	2	0	0	0	0	33	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.69: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICRSSL
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	437	272	117	0	0	5	0	0	0	0	43	0
VS2	209	131	56	0	0	2	0	0	0	0	20	0
S1	37	23	10	0	0	0	0	0	0	0	4	0
S2	23	14	1	0	0	0	0	0	0	0	8	0
S3	7	4	0	0	0	0	0	0	0	0	2	0
M1	4	0	0	0	0	0	0	0	0	0	3	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	0	0
Total Plants	716	444	184	0	0	8	0	0	0	0	80	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.70: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICRSSL
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	105	66	28	0	0	1	0	0	0	0	10	0
VS2	237	148	63	0	0	3	0	0	0	0	23	0
S1	142	89	38	0	0	2	0	0	0	0	14	0
S2	361	225	10	0	0	2	2	0	0	0	122	0
S3	366	228	10	0	0	2	2	0	0	0	124	0
M1	342	0	0	33	4	11	11	6	0	0	277	0
M2	94	0	0	9	1	3	3	2	0	0	76	0
L1	108	0	0	10	1	3	4	2	0	0	88	0
L2	18	0	0	2	0	0	1	0	0	0	15	0
Total Plants	1,773	755	149	54	6	27	21	11	1	1	748	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.71: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSL
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	63	39	17	0	0	1	0	0	0	0	6	0
VS2	96	60	26	0	0	1	0	0	0	0	9	0
S1	33	20	9	0	0	0	0	0	0	0	3	0
S2	30	18	1	0	0	0	0	0	0	0	10	0
S3	8	5	0	0	0	0	0	0	0	0	3	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	232	143	52	0	0	2	0	0	0	0	33	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.72: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICRSSL
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	437	272	117	0	0	5	0	0	0	0	43	0
VS2	209	131	56	0	0	2	0	0	0	0	20	0
S1	37	23	10	0	0	0	0	0	0	0	4	0
S2	23	14	1	0	0	0	0	0	0	0	8	0
S3	7	4	0	0	0	0	0	0	0	0	2	0
M1	4	0	0	0	0	0	0	0	0	0	3	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	0	0
Total Plants	716	444	184	0	0	8	0	0	0	0	80	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.73: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSL_High
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	119	72	33	0	0	1	0	0	0	0	12	0
VS2	268	163	74	0	0	3	0	0	0	0	27	0
S1	160	98	44	0	0	2	0	0	0	0	16	0
S2	407	249	11	0	0	3	2	0	0	0	143	0
S3	413	252	11	0	0	1	2	1	1	0	145	0
M1	389	0	0	37	4	5	12	10	6	0	316	0
M2	107	0	0	10	1	1	3	3	2	0	87	0
L1	123	0	0	11	1	1	4	3	2	0	100	0
L2	20	0	0	2	0	0	1	1	0	0	17	0
Total Plants	2,006	835	173	60	6	17	23	17	11	0	862	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.74: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSL_High
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	71	44	20	0	0	1	0	0	0	0	7	0
VS2	109	67	30	0	0	1	0	0	0	0	11	0
S1	37	23	10	0	0	0	0	0	0	0	4	0
S2	33	20	1	0	0	0	0	0	0	0	12	0
S3	9	6	0	0	0	0	0	0	0	0	3	0
M1	2	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	261	159	61	0	0	3	0	0	0	0	39	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.75: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICRSSL_High
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	493	301	136	0	0	6	0	0	0	0	50	0
VS2	236	144	65	0	0	3	0	0	0	0	24	0
S1	41	25	11	0	0	0	0	0	0	0	4	0
S2	26	16	1	0	0	0	0	0	0	0	9	0
S3	7	4	0	0	0	0	0	0	0	0	3	0
M1	4	0	0	0	0	0	0	0	0	0	3	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	1	0
Total Plants	809	491	213	0	0	9	0	0	0	0	94	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.76: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSL_High
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	119	72	33	0	0	1	0	0	0	0	12	0
VS2	268	163	74	0	0	3	0	0	0	0	27	0
S1	160	98	44	0	0	2	0	0	0	0	16	0
S2	407	249	11	0	0	3	2	0	0	0	143	0
S3	413	252	11	0	0	2	2	1	0	0	145	0
M1	389	0	0	36	4	13	12	7	0	0	316	0
M2	107	0	0	10	1	3	3	2	0	0	87	0
L1	123	0	0	11	1	4	4	3	0	0	100	0
L2	20	0	0	2	0	1	1	0	0	0	17	0
Total Plants	2,006	835	173	59	7	32	23	12	1	1	862	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.77: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSL_High
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	71	44	20	0	0	1	0	0	0	0	7	0
VS2	109	67	30	0	0	1	0	0	0	0	11	0
S1	37	23	10	0	0	0	0	0	0	0	4	0
S2	33	20	1	0	0	0	0	0	0	0	12	0
S3	9	6	0	0	0	0	0	0	0	0	3	0
M1	2	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	261	159	61	0	0	3	0	0	0	0	39	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.78: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICRSSL_High
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	493	301	136	0	0	6	0	0	0	0	50	0
VS2	236	144	65	0	0	3	0	0	0	0	24	0
S1	41	25	11	0	0	0	0	0	0	0	4	0
S2	26	16	1	0	0	0	0	0	0	0	9	0
S3	7	4	0	0	0	0	0	0	0	0	3	0
M1	4	0	0	0	0	0	0	0	0	0	3	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	1	0
Total Plants	809	491	213	0	0	9	0	0	0	0	94	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.79: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICRSSL_Low
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	54	48	1	0	0	1	0	0	0	0	5	0
VS2	121	108	1	0	0	1	0	0	0	0	11	0
S1	72	64	1	0	0	1	0	0	0	0	7	0
S2	184	164	0	0	0	1	1	0	0	0	18	0
S3	187	166	0	0	0	0	1	1	0	0	18	0
M1	199	0	0	6	2	1	9	6	1	0	174	0
M2	55	0	0	2	1	0	3	2	0	0	48	0
L1	63	0	0	2	1	0	3	2	0	0	55	0
L2	11	0	0	0	0	0	1	0	0	0	9	0
Total Plants	945	549	3	9	4	5	17	11	2	0	345	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.80: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICRSSL_Low
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	32	29	0	0	0	0	0	0	0	0	3	0
VS2	49	44	0	0	0	0	0	0	0	0	4	0
S1	17	15	0	0	0	0	0	0	0	0	2	0
S2	15	13	0	0	0	0	0	0	0	0	1	0
S3	4	4	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	118	104	1	0	0	1	0	0	0	0	12	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.81: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICRSSL_Low
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	223	198	2	0	0	2	0	0	0	0	20	0
VS2	107	95	1	0	0	1	0	0	0	0	10	0
S1	19	17	0	0	0	0	0	0	0	0	2	0
S2	12	10	0	0	0	0	0	0	0	0	1	0
S3	3	3	0	0	0	0	0	0	0	0	0	0
M1	2	0	0	0	0	0	0	0	0	0	2	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	366	323	3	0	0	4	0	0	0	0	35	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.82: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICRSSL_Low
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	54	48	1	0	0	1	0	0	0	0	5	0
VS2	121	108	1	0	0	1	0	0	0	0	11	0
S1	72	64	1	0	0	1	0	0	0	0	7	0
S2	184	164	0	0	0	1	1	0	0	0	18	0
S3	187	166	0	0	0	1	1	1	0	0	18	0
M1	199	0	0	6	2	3	9	4	0	0	174	0
M2	55	0	0	2	1	1	3	1	0	0	48	0
L1	63	0	0	2	1	1	3	2	0	0	55	0
L2	11	0	0	0	0	0	1	0	0	0	9	0
Total Plants	946	549	3	9	4	10	17	8	0	0	345	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.83: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICRSSL_Low
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	32	29	0	0	0	0	0	0	0	0	3	0
VS2	49	44	0	0	0	0	0	0	0	0	4	0
S1	17	15	0	0	0	0	0	0	0	0	2	0
S2	15	13	0	0	0	0	0	0	0	0	1	0
S3	4	4	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	118	104	1	0	0	1	0	0	0	0	12	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.84: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICRSSL_Low
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	223	198	2	0	0	2	0	0	0	0	20	0
VS2	107	95	1	0	0	1	0	0	0	0	10	0
S1	19	17	0	0	0	0	0	0	0	0	2	0
S2	12	10	0	0	0	0	0	0	0	0	1	0
S3	3	3	0	0	0	0	0	0	0	0	0	0
M1	2	0	0	0	0	0	0	0	0	0	2	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	366	323	3	0	0	4	0	0	0	0	35	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.85: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICRSSL
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	68	60	1	0	0	1	0	0	0	0	6	0
VS2	153	134	3	0	0	2	0	0	0	0	14	0
S1	92	80	2	0	0	1	0	0	0	0	8	0
S2	233	204	0	0	0	2	1	0	0	0	26	0
S3	236	207	0	0	0	0	1	1	0	0	26	0
M1	252	0	0	7	3	1	12	8	1	0	221	0
M2	69	0	0	2	1	0	3	2	0	0	61	0
L1	80	0	0	3	1	0	4	2	0	0	70	0
L2	13	0	0	0	0	0	1	0	0	0	12	0
Total Plants	1,197	686	8	12	5	7	21	14	3	0	443	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.86: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICRSSL
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	41	36	1	0	0	0	0	0	0	0	4	0
VS2	62	55	1	0	0	1	0	0	0	0	6	0
S1	21	19	0	0	0	0	0	0	0	0	2	0
S2	19	17	0	0	0	0	0	0	0	0	2	0
S3	5	5	0	0	0	0	0	0	0	0	1	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	150	130	3	0	0	1	0	0	0	0	15	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.87: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICRSSL
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	282	247	6	0	0	3	0	0	0	0	26	0
VS2	135	119	3	0	0	1	0	0	0	0	12	0
S1	24	21	0	0	0	0	0	0	0	0	2	0
S2	15	13	0	0	0	0	0	0	0	0	2	0
S3	4	4	0	0	0	0	0	0	0	0	0	0
M1	3	0	0	0	0	0	0	0	0	0	2	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	463	403	9	0	0	5	0	0	0	0	45	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.88: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICRSSL
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	68	60	1	0	0	1	0	0	0	0	6	0
VS2	153	134	3	0	0	2	0	0	0	0	14	0
S1	92	80	2	0	0	1	0	0	0	0	8	0
S2	233	204	0	0	0	2	1	0	0	0	26	0
S3	236	207	0	0	0	1	1	1	0	0	26	0
M1	253	0	0	7	3	5	12	5	0	0	221	0
M2	69	0	0	2	1	1	3	2	0	0	61	0
L1	80	0	0	2	1	1	4	2	0	0	70	0
L2	13	0	0	0	0	0	1	0	0	0	12	0
Total Plants	1,197	686	8	12	5	13	21	10	0	0	443	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.89: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICRSSL
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	41	36	1	0	0	0	0	0	0	0	4	0
VS2	62	55	1	0	0	1	0	0	0	0	6	0
S1	21	19	0	0	0	0	0	0	0	0	2	0
S2	19	17	0	0	0	0	0	0	0	0	2	0
S3	5	5	0	0	0	0	0	0	0	0	1	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	150	130	3	0	0	1	0	0	0	0	15	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.90: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICRSSL
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	282	247	6	0	0	3	0	0	0	0	26	0
VS2	135	119	3	0	0	1	0	0	0	0	12	0
S1	24	21	0	0	0	0	0	0	0	0	2	0
S2	15	13	0	0	0	0	0	0	0	0	2	0
S3	4	4	0	0	0	0	0	0	0	0	0	0
M1	3	0	0	0	0	0	0	0	0	0	2	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	463	403	9	0	0	5	0	0	0	0	45	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.91: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICRSSL_High
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	78	67	2	0	0	1	0	0	0	0	7	0
VS2	175	152	5	0	0	2	0	0	0	0	16	0
S1	105	91	3	0	0	1	0	0	0	0	10	0
S2	266	231	1	0	0	2	1	0	0	0	32	0
S3	270	235	1	0	0	0	1	1	0	0	32	0
M1	289	0	0	8	3	1	13	9	2	0	253	0
M2	79	0	0	2	1	0	4	2	1	0	69	0
L1	92	0	0	3	1	0	4	3	1	0	80	0
L2	15	0	0	0	0	0	1	0	0	0	13	0
Total Plants	1,368	776	12	13	5	8	24	15	3	0	511	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.92: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICRSSL_High
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	47	40	1	0	0	0	0	0	0	0	4	0
VS2	71	62	2	0	0	1	0	0	0	0	7	0
S1	24	21	1	0	0	0	0	0	0	0	2	0
S2	22	19	0	0	0	0	0	0	0	0	3	0
S3	6	5	0	0	0	0	0	0	0	0	1	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	171	147	4	0	0	2	0	0	0	0	18	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.93: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICRSSL_High
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	322	280	9	0	0	3	0	0	0	0	30	0
VS2	154	134	4	0	0	2	0	0	0	0	14	0
S1	27	24	1	0	0	0	0	0	0	0	3	0
S2	17	15	0	0	0	0	0	0	0	0	2	0
S3	5	4	0	0	0	0	0	0	0	0	1	0
M1	3	0	0	0	0	0	0	0	0	0	3	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	529	456	14	0	0	5	0	0	0	0	53	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.94: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICRSSL_High
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	78	67	2	0	0	1	0	0	0	0	7	0
VS2	175	152	5	0	0	2	0	0	0	0	16	0
S1	105	91	3	0	0	1	0	0	0	0	10	0
S2	266	231	1	0	0	2	1	0	0	0	32	0
S3	270	235	1	0	0	1	1	1	0	0	32	0
M1	289	0	0	8	3	5	13	6	0	0	253	0
M2	79	0	0	2	1	1	4	2	0	0	69	0
L1	92	0	0	3	1	1	4	2	0	0	80	0
L2	15	0	0	0	0	0	1	0	0	0	13	0
Total Plants	1,369	776	12	13	6	15	23	11	0	1	511	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.95: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICRSSL_High
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	47	40	1	0	0	0	0	0	0	0	4	0
VS2	71	62	2	0	0	1	0	0	0	0	7	0
S1	24	21	1	0	0	0	0	0	0	0	2	0
S2	22	19	0	0	0	0	0	0	0	0	3	0
S3	6	5	0	0	0	0	0	0	0	0	1	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	171	147	4	0	0	2	0	0	0	0	18	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.96: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICRSSL_High
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	322	280	9	0	0	3	0	0	0	0	30	0
VS2	154	134	4	0	0	2	0	0	0	0	14	0
S1	27	24	1	0	0	0	0	0	0	0	3	0
S2	17	15	0	0	0	0	0	0	0	0	2	0
S3	5	4	0	0	0	0	0	0	0	0	1	0
M1	3	0	0	0	0	0	0	0	0	0	3	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	529	456	14	0	0	5	0	0	0	0	53	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.97: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICRSSL_Low
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	24	22	0	0	0	0	0	0	0	0	2	0
VS2	54	49	0	0	0	1	0	0	0	0	5	0
S1	33	29	0	0	0	0	0	0	0	0	3	0
S2	83	74	0	0	0	0	1	0	0	0	7	0
S3	84	75	0	0	0	0	1	0	0	0	8	0
M1	66	0	0	13	1	0	4	0	0	0	47	0
M2	18	0	0	4	0	0	1	0	0	0	13	0
L1	20	0	0	4	0	0	1	0	0	0	14	0
L2	3	0	0	1	0	0	0	0	0	0	2	0
Total Plants	385	250	0	22	1	1	8	1	0	0	102	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.98: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICRSSL_Low
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	14	13	0	0	0	0	0	0	0	0	1	0
VS2	22	20	0	0	0	0	0	0	0	0	2	0
S1	8	7	0	0	0	0	0	0	0	0	1	0
S2	7	6	0	0	0	0	0	0	0	0	1	0
S3	2	2	0	0	0	0	0	0	0	0	0	0
M1	0	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	53	47	0	0	0	0	0	0	0	0	5	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.99: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICRSSL_Low
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	100	90	0	0	0	1	0	0	0	0	9	0
VS2	48	43	0	0	0	0	0	0	0	0	4	0
S1	8	8	0	0	0	0	0	0	0	0	1	0
S2	5	5	0	0	0	0	0	0	0	0	0	0
S3	1	1	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	164	147	0	0	0	2	0	0	0	0	15	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.100: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICRSSL_Low
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	24	22	0	0	0	0	0	0	0	0	2	0
VS2	54	49	0	0	0	1	0	0	0	0	5	0
S1	33	29	0	0	0	0	0	0	0	0	3	0
S2	83	74	0	0	0	0	1	0	0	0	7	0
S3	84	75	0	0	0	0	1	0	0	0	8	0
M1	66	0	0	13	1	0	4	0	0	0	47	0
M2	18	0	0	4	0	0	1	0	0	0	13	0
L1	20	0	0	4	0	0	1	0	0	0	14	0
L2	3	0	0	1	0	0	0	0	0	0	2	0
Total Plants	385	250	0	22	1	2	8	1	0	0	102	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.101: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICRSSL_Low
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	14	13	0	0	0	0	0	0	0	0	1	0
VS2	22	20	0	0	0	0	0	0	0	0	2	0
S1	8	7	0	0	0	0	0	0	0	0	1	0
S2	7	6	0	0	0	0	0	0	0	0	1	0
S3	2	2	0	0	0	0	0	0	0	0	0	0
M1	0	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	53	47	0	0	0	0	0	0	0	0	5	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.102: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICRSSL_Low
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	100	90	0	0	0	1	0	0	0	0	9	0
VS2	48	43	0	0	0	0	0	0	0	0	4	0
S1	8	8	0	0	0	0	0	0	0	0	1	0
S2	5	5	0	0	0	0	0	0	0	0	0	0
S3	1	1	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	164	147	0	0	0	2	0	0	0	0	15	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.103: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICRSSL
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	31	28	0	0	0	0	0	0	0	0	3	0
VS2	71	64	0	0	0	1	0	0	0	0	6	0
S1	42	38	0	0	0	0	0	0	0	0	4	0
S2	108	97	0	0	0	0	1	0	0	0	10	0
S3	109	98	0	0	0	0	1	0	0	0	10	0
M1	86	0	0	17	1	0	5	1	0	0	62	0
M2	24	0	0	5	0	0	1	0	0	0	17	0
L1	26	0	0	5	0	0	2	0	0	0	19	0
L2	4	0	0	1	0	0	0	0	0	0	3	0
Total Plants	501	325	0	28	1	2	10	1	0	0	134	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.104: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICRSSL
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	19	17	0	0	0	0	0	0	0	0	2	0
VS2	29	26	0	0	0	0	0	0	0	0	3	0
S1	10	9	0	0	0	0	0	0	0	0	1	0
S2	9	8	0	0	0	0	0	0	0	0	1	0
S3	2	2	0	0	0	0	0	0	0	0	0	0
M1	0	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	69	62	0	0	0	1	0	0	0	0	6	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.105: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICRSSL
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	130	117	0	0	0	1	0	0	0	0	12	0
VS2	62	56	0	0	0	1	0	0	0	0	6	0
S1	11	10	0	0	0	0	0	0	0	0	1	0
S2	7	6	0	0	0	0	0	0	0	0	1	0
S3	2	2	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	213	191	0	0	0	2	0	0	0	0	20	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.106: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICRSSL
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	31	28	0	0	0	0	0	0	0	0	3	0
VS2	71	64	0	0	0	1	0	0	0	0	6	0
S1	42	38	0	0	0	0	0	0	0	0	4	0
S2	108	97	0	0	0	0	1	0	0	0	10	0
S3	109	98	0	0	0	0	1	0	0	0	10	0
M1	86	0	0	17	1	0	5	1	0	0	62	0
M2	24	0	0	5	0	0	1	0	0	0	17	0
L1	26	0	0	5	0	0	2	0	0	0	19	0
L2	4	0	0	1	0	0	0	0	0	0	3	0
Total Plants	502	325	0	28	1	2	10	1	0	0	134	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.107: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICRSSL
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	19	17	0	0	0	0	0	0	0	0	2	0
VS2	29	26	0	0	0	0	0	0	0	0	3	0
S1	10	9	0	0	0	0	0	0	0	0	1	0
S2	9	8	0	0	0	0	0	0	0	0	1	0
S3	2	2	0	0	0	0	0	0	0	0	0	0
M1	0	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	69	62	0	0	0	1	0	0	0	0	6	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.108: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICRSSL
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	130	117	0	0	0	1	0	0	0	0	12	0
VS2	62	56	0	0	0	1	0	0	0	0	6	0
S1	11	10	0	0	0	0	0	0	0	0	1	0
S2	7	6	0	0	0	0	0	0	0	0	1	0
S3	2	2	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	213	191	0	0	0	2	0	0	0	0	20	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.109: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICRSSL_High
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	38	34	0	0	0	0	0	0	0	0	3	0
VS2	86	77	0	0	0	1	0	0	0	0	8	0
S1	51	46	0	0	0	0	0	0	0	0	5	0
S2	131	118	0	0	0	0	1	0	0	0	12	0
S3	133	119	0	0	0	0	1	0	0	0	12	0
M1	106	0	0	20	1	0	6	1	0	0	77	0
M2	29	0	0	6	0	0	2	0	0	0	21	0
L1	32	0	0	6	0	0	2	0	0	0	23	0
L2	5	0	0	1	0	0	0	0	0	0	4	0
Total Plants	611	395	0	33	2	2	13	2	0	0	165	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.110: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICRSSL_High
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	23	21	0	0	0	0	0	0	0	0	2	0
VS2	35	31	0	0	0	0	0	0	0	0	3	0
S1	12	11	0	0	0	0	0	0	0	0	1	0
S2	11	10	0	0	0	0	0	0	0	0	1	0
S3	3	3	0	0	0	0	0	0	0	0	0	0
M1	0	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	84	75	0	0	0	1	0	0	0	0	8	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.111: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICRSSL_High
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	158	142	0	0	0	2	0	0	0	0	14	0
VS2	76	68	0	0	0	1	0	0	0	0	7	0
S1	13	12	0	0	0	0	0	0	0	0	1	0
S2	8	7	0	0	0	0	0	0	0	0	1	0
S3	2	2	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	259	232	0	0	0	2	0	0	0	0	24	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.112: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICRSSL_High
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	38	34	0	0	0	0	0	0	0	0	3	0
VS2	86	77	0	0	0	1	0	0	0	0	8	0
S1	51	46	0	0	0	0	0	0	0	0	5	0
S2	131	118	0	0	0	0	1	0	0	0	12	0
S3	133	119	0	0	0	0	1	0	0	0	12	0
M1	106	0	0	20	1	0	6	1	0	0	77	0
M2	29	0	0	6	0	0	2	0	0	0	21	0
L1	32	0	0	6	0	0	2	0	0	0	23	0
L2	5	0	0	1	0	0	0	0	0	0	4	0
Total Plants	612	395	0	33	2	3	12	1	0	0	165	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.113: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICRSSL_High
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	23	21	0	0	0	0	0	0	0	0	2	0
VS2	35	31	0	0	0	0	0	0	0	0	3	0
S1	12	11	0	0	0	0	0	0	0	0	1	0
S2	11	10	0	0	0	0	0	0	0	0	1	0
S3	3	3	0	0	0	0	0	0	0	0	0	0
M1	0	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	84	75	0	0	0	1	0	0	0	0	8	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.114: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICRSSL_High
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	158	142	0	0	0	2	0	0	0	0	14	0
VS2	76	68	0	0	0	1	0	0	0	0	7	0
S1	13	12	0	0	0	0	0	0	0	0	1	0
S2	8	7	0	0	0	0	0	0	0	0	1	0
S3	2	2	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	259	232	0	0	0	2	0	0	0	0	24	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.115: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSM_Low
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	103	59	32	0	0	1	0	0	0	0	11	0
VS2	232	132	72	0	0	3	0	0	0	0	25	0
S1	139	79	43	0	0	2	0	0	0	0	15	0
S2	353	201	11	0	0	3	1	0	0	0	137	0
S3	358	204	11	0	0	1	1	1	1	0	139	0
M1	345	0	0	28	3	5	9	9	6	0	284	0
M2	95	0	0	8	1	1	3	3	2	0	78	0
L1	109	0	0	9	1	1	3	3	2	0	90	0
L2	18	0	0	1	0	0	1	1	0	0	15	0
Total Plants	1,753	676	170	46	5	17	18	16	11	0	793	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.116: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSM_Low
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	62	35	19	0	0	1	0	0	0	0	7	0
VS2	94	54	29	0	0	1	0	0	0	0	10	0
S1	32	18	10	0	0	0	0	0	0	0	3	0
S2	29	16	1	0	0	0	0	0	0	0	11	0
S3	8	5	0	0	0	0	0	0	0	0	3	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	227	128	60	0	0	3	0	0	0	0	36	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.117: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICRSSM_Low
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	427	244	133	0	0	5	0	0	0	0	46	0
VS2	205	117	64	0	0	2	0	0	0	0	22	0
S1	36	20	11	0	0	0	0	0	0	0	4	0
S2	22	13	1	0	0	0	0	0	0	0	9	0
S3	6	4	0	0	0	0	0	0	0	0	2	0
M1	4	0	0	0	0	0	0	0	0	0	3	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	0	0
Total Plants	702	397	209	0	0	8	0	0	0	0	86	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.118: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSM_Low
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	103	59	32	0	0	1	0	0	0	0	11	0
VS2	232	132	72	0	0	3	0	0	0	0	25	0
S1	139	79	43	0	0	2	0	0	0	0	15	0
S2	353	201	11	0	0	3	1	0	0	0	137	0
S3	358	204	11	0	0	2	1	0	0	0	139	0
M1	345	0	0	28	4	13	9	6	0	0	284	0
M2	95	0	0	8	1	3	3	2	0	0	78	0
L1	110	0	0	8	1	4	3	2	0	0	90	0
L2	18	0	0	1	0	1	1	0	0	0	15	0
Total Plants	1,752	676	170	45	6	31	18	11	1	1	793	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.119: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSM_Low
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	62	35	19	0	0	1	0	0	0	0	7	0
VS2	94	54	29	0	0	1	0	0	0	0	10	0
S1	32	18	10	0	0	0	0	0	0	0	3	0
S2	29	16	1	0	0	0	0	0	0	0	11	0
S3	8	5	0	0	0	0	0	0	0	0	3	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	227	128	60	0	0	3	0	0	0	0	36	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.120: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICRSSM_Low
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	427	244	133	0	0	5	0	0	0	0	46	0
VS2	205	117	64	0	0	2	0	0	0	0	22	0
S1	36	20	11	0	0	0	0	0	0	0	4	0
S2	22	13	1	0	0	0	0	0	0	0	9	0
S3	6	4	0	0	0	0	0	0	0	0	2	0
M1	4	0	0	0	0	0	0	0	0	0	3	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	0	0
Total Plants	702	397	209	0	0	8	0	0	0	0	86	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.121: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICRSSM
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	115	64	36	0	0	1	0	0	0	0	13	0
VS2	259	145	82	0	0	3	0	0	0	0	29	0
S1	155	87	49	0	0	2	0	0	0	0	17	0
S2	394	220	12	0	0	3	1	0	0	0	156	0
S3	400	224	13	0	0	2	1	1	1	0	159	0
M1	387	0	0	31	4	6	10	10	7	0	320	0
M2	106	0	0	8	1	1	3	3	2	0	88	0
L1	123	0	0	9	1	1	3	4	2	0	102	0
L2	20	0	0	2	0	0	1	1	0	0	17	0
Total Plants	1,959	739	193	50	6	20	20	18	12	0	900	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.122: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSM
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	69	39	22	0	0	1	0	0	0	0	8	0
VS2	105	59	33	0	0	1	0	0	0	0	12	0
S1	36	20	11	0	0	0	0	0	0	0	4	0
S2	32	18	1	0	0	0	0	0	0	0	13	0
S3	9	5	0	0	0	0	0	0	0	0	4	0
M1	2	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	253	140	68	0	0	3	0	0	0	0	41	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.123: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICRSSM
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	477	267	151	0	0	6	0	0	0	0	53	0
VS2	229	128	72	0	0	3	0	0	0	0	26	0
S1	40	22	13	0	0	0	0	0	0	0	4	0
S2	25	14	1	0	0	0	0	0	0	0	10	0
S3	7	4	0	0	0	0	0	0	0	0	3	0
M1	4	0	0	0	0	0	0	0	0	0	3	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	1	0
Total Plants	783	435	237	0	0	10	0	0	0	0	100	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.124: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSM
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	115	64	36	0	0	1	0	0	0	0	13	0
VS2	259	145	82	0	0	3	0	0	0	0	29	0
S1	155	87	49	0	0	2	0	0	0	0	17	0
S2	394	220	12	0	0	3	1	0	0	0	156	0
S3	400	224	13	0	0	3	1	1	0	0	159	0
M1	386	0	0	30	4	15	10	7	1	0	320	0
M2	106	0	0	8	1	4	3	2	0	0	88	0
L1	123	0	0	9	1	4	3	3	0	0	102	0
L2	20	0	0	2	0	1	1	0	0	0	17	0
Total Plants	1,959	739	193	49	7	36	20	13	1	1	900	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.125: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSM
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	69	39	22	0	0	1	0	0	0	0	8	0
VS2	105	59	33	0	0	1	0	0	0	0	12	0
S1	36	20	11	0	0	0	0	0	0	0	4	0
S2	32	18	1	0	0	0	0	0	0	0	13	0
S3	9	5	0	0	0	0	0	0	0	0	4	0
M1	2	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	253	140	68	0	0	3	0	0	0	0	41	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.126: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICRSSM
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	477	267	151	0	0	6	0	0	0	0	53	0
VS2	229	128	72	0	0	3	0	0	0	0	26	0
S1	40	22	13	0	0	0	0	0	0	0	4	0
S2	25	14	1	0	0	0	0	0	0	0	10	0
S3	7	4	0	0	0	0	0	0	0	0	3	0
M1	4	0	0	0	0	0	0	0	0	0	3	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	1	0
Total Plants	783	435	237	0	0	10	0	0	0	0	100	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.127: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICRSSM_High
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	126	69	40	0	0	2	0	0	0	0	15	0
VS2	283	156	90	0	0	4	0	0	0	0	34	0
S1	170	93	54	0	0	2	0	0	0	0	20	0
S2	431	237	14	0	0	4	2	0	0	0	175	0
S3	437	240	14	0	0	2	2	1	1	0	177	0
M1	424	0	0	33	4	6	11	11	7	0	351	0
M2	117	0	0	9	1	2	3	3	2	0	96	0
L1	135	0	0	10	1	2	4	4	2	0	111	0
L2	22	0	0	2	0	0	1	1	0	0	19	0
Total Plants	2,144	795	211	54	7	24	21	19	14	0	998	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.128: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSM_High
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	75	41	24	0	0	1	0	0	0	0	9	0
VS2	115	63	36	0	0	2	0	0	0	0	14	0
S1	39	22	12	0	0	1	0	0	0	0	5	0
S2	35	19	1	0	0	0	0	0	0	0	14	0
S3	10	5	0	0	0	0	0	0	0	0	4	0
M1	2	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	277	151	74	0	0	3	0	0	0	0	48	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.129: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICRSSM_High
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	522	287	165	0	0	7	0	0	0	0	63	0
VS2	250	137	79	0	0	3	0	0	0	0	30	0
S1	44	24	14	0	0	1	0	0	0	0	5	0
S2	27	15	1	0	0	0	0	0	0	0	11	0
S3	8	4	0	0	0	0	0	0	0	0	3	0
M1	4	0	0	0	0	0	0	0	0	0	4	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	1	0
Total Plants	856	467	259	0	0	11	0	0	0	0	117	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.130: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICRSSM_High
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	126	69	40	0	0	2	0	0	0	0	15	0
VS2	283	156	90	0	0	4	0	0	0	0	34	0
S1	170	93	54	0	0	2	0	0	0	0	20	0
S2	431	237	14	0	0	4	1	0	0	0	175	0
S3	437	240	14	0	0	4	1	1	0	0	177	0
M1	423	0	0	32	4	17	11	8	1	0	351	0
M2	116	0	0	9	1	4	3	2	0	0	96	0
L1	135	0	0	10	1	5	4	3	0	0	111	0
L2	22	0	0	2	0	1	1	0	0	0	19	0
Total Plants	2,143	795	211	53	7	42	21	14	1	1	998	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.131: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A2
Occurrence Distribution: ICRSSM_High
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	75	41	24	0	0	1	0	0	0	0	9	0
VS2	115	63	36	0	0	2	0	0	0	0	14	0
S1	39	22	12	0	0	1	0	0	0	0	5	0
S2	35	19	1	0	0	0	0	0	0	0	14	0
S3	10	5	0	0	0	0	0	0	0	0	4	0
M1	2	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	277	151	74	0	0	4	0	0	0	0	48	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.132: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A2
Occurrence Distribution: ICRSSM_High
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	522	287	165	0	0	7	0	0	0	0	63	0
VS2	250	137	79	0	0	3	0	0	0	0	30	0
S1	44	24	14	0	0	1	0	0	0	0	5	0
S2	27	15	1	0	0	0	0	0	0	0	11	0
S3	8	4	0	0	0	0	0	0	0	0	3	0
M1	4	0	0	0	0	0	0	0	0	0	4	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	1	0
Total Plants	856	467	259	0	0	11	0	0	0	0	117	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.133: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICRSSM_Low
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	73	62	3	0	0	1	0	0	0	0	7	0
VS2	164	141	6	0	0	2	0	0	0	0	15	0
S1	98	84	4	0	0	1	0	0	0	0	9	0
S2	250	215	1	0	0	2	1	0	0	0	32	0
S3	254	218	1	0	0	0	1	1	0	0	32	0
M1	271	0	0	7	3	1	12	8	2	0	237	0
M2	74	0	0	2	1	0	3	2	1	0	65	0
L1	86	0	0	3	1	0	4	2	1	0	75	0
L2	14	0	0	0	0	0	1	0	0	0	12	0
Total Plants	1,285	720	14	13	5	8	22	14	3	0	485	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.134: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICRSSM_Low
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	44	38	2	0	0	0	0	0	0	0	4	0
VS2	67	57	2	0	0	1	0	0	0	0	6	0
S1	23	19	1	0	0	0	0	0	0	0	2	0
S2	20	18	0	0	0	0	0	0	0	0	3	0
S3	6	5	0	0	0	0	0	0	0	0	1	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	161	137	5	0	0	2	0	0	0	0	17	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.135: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICRSSM_Low
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	302	260	11	0	0	3	0	0	0	0	28	0
VS2	145	124	5	0	0	2	0	0	0	0	14	0
S1	25	22	1	0	0	0	0	0	0	0	2	0
S2	16	14	0	0	0	0	0	0	0	0	2	0
S3	5	4	0	0	0	0	0	0	0	0	1	0
M1	3	0	0	0	0	0	0	0	0	0	2	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	497	423	18	0	0	5	0	0	0	0	50	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.136: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICRSSM_Low
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	73	62	3	0	0	1	0	0	0	0	7	0
VS2	164	141	6	0	0	2	0	0	0	0	15	0
S1	98	84	4	0	0	1	0	0	0	0	9	0
S2	250	215	1	0	0	2	1	0	0	0	32	0
S3	254	218	1	0	0	1	1	1	0	0	32	0
M1	271	0	0	7	3	5	12	6	0	0	237	0
M2	75	0	0	2	1	1	3	2	0	0	65	0
L1	86	0	0	3	1	1	4	2	0	0	75	0
L2	14	0	0	0	0	0	1	0	0	0	12	0
Total Plants	1,285	720	14	12	5	15	22	11	0	1	485	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.137: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICRSSM_Low
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	44	38	2	0	0	0	0	0	0	0	4	0
VS2	67	57	2	0	0	1	0	0	0	0	6	0
S1	23	19	1	0	0	0	0	0	0	0	2	0
S2	20	18	0	0	0	0	0	0	0	0	3	0
S3	6	5	0	0	0	0	0	0	0	0	1	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	161	137	5	0	0	2	0	0	0	0	17	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.138: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICRSSM_Low
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	302	260	11	0	0	3	0	0	0	0	28	0
VS2	145	124	5	0	0	2	0	0	0	0	14	0
S1	25	22	1	0	0	0	0	0	0	0	2	0
S2	16	14	0	0	0	0	0	0	0	0	2	0
S3	5	4	0	0	0	0	0	0	0	0	1	0
M1	3	0	0	0	0	0	0	0	0	0	2	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	497	423	18	0	0	5	0	0	0	0	50	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.139: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICRSSM
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	83	69	4	0	0	1	0	0	0	0	8	0
VS2	186	156	10	0	0	2	0	0	0	0	18	0
S1	111	94	6	0	0	1	0	0	0	0	11	0
S2	283	238	1	0	0	2	1	0	0	0	41	0
S3	288	242	1	0	0	1	1	1	0	0	41	0
M1	308	0	0	8	3	2	14	9	2	0	269	0
M2	84	0	0	2	1	0	4	2	1	0	74	0
L1	98	0	0	3	1	0	5	3	1	0	85	0
L2	16	0	0	1	0	0	1	0	0	0	14	0
Total Plants	1,457	799	22	14	5	10	25	16	4	0	562	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.140: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICRSSM
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	50	42	3	0	0	1	0	0	0	0	5	0
VS2	76	64	4	0	0	1	0	0	0	0	7	0
S1	26	22	1	0	0	0	0	0	0	0	3	0
S2	23	19	0	0	0	0	0	0	0	0	3	0
S3	6	5	0	0	0	0	0	0	0	0	1	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	182	152	8	0	0	2	0	0	0	0	20	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.141: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICRSSM
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	343	288	18	0	0	4	0	0	0	0	33	0
VS2	164	138	8	0	0	2	0	0	0	0	16	0
S1	29	24	1	0	0	0	0	0	0	0	3	0
S2	18	15	0	0	0	0	0	0	0	0	3	0
S3	5	4	0	0	0	0	0	0	0	0	1	0
M1	3	0	0	0	0	0	0	0	0	0	3	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	0	0
Total Plants	563	470	28	0	0	6	0	0	0	0	59	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.142: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICRSSM
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	83	69	4	0	0	1	0	0	0	0	8	0
VS2	186	156	10	0	0	2	0	0	0	0	18	0
S1	111	94	6	0	0	1	0	0	0	0	11	0
S2	283	238	1	0	0	2	1	0	0	0	41	0
S3	288	242	1	0	0	1	1	1	0	0	41	0
M1	308	0	0	8	4	7	14	6	0	0	269	0
M2	85	0	0	2	1	2	4	2	0	0	74	0
L1	98	0	0	3	1	2	4	2	0	0	85	0
L2	16	0	0	0	0	0	1	0	0	0	14	0
Total Plants	1,458	799	22	14	6	18	24	12	0	1	562	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.143: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICRSSM
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	50	42	3	0	0	1	0	0	0	0	5	0
VS2	76	64	4	0	0	1	0	0	0	0	7	0
S1	26	22	1	0	0	0	0	0	0	0	3	0
S2	23	19	0	0	0	0	0	0	0	0	3	0
S3	6	5	0	0	0	0	0	0	0	0	1	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	182	152	8	0	0	2	0	0	0	0	20	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.144: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICRSSM
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	343	288	18	0	0	4	0	0	0	0	33	0
VS2	164	138	8	0	0	2	0	0	0	0	16	0
S1	29	24	1	0	0	0	0	0	0	0	3	0
S2	18	15	0	0	0	0	0	0	0	0	3	0
S3	5	4	0	0	0	0	0	0	0	0	1	0
M1	3	0	0	0	0	0	0	0	0	0	3	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	0	0
Total Plants	563	470	28	0	0	6	0	0	0	0	59	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.145: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICRSSM_High
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	91	75	6	0	0	1	0	0	0	0	9	0
VS2	205	169	13	0	0	2	0	0	0	0	20	0
S1	123	101	8	0	0	1	0	0	0	0	12	0
S2	312	258	2	0	0	3	1	0	0	0	49	0
S3	316	262	2	0	0	1	1	1	0	0	49	0
M1	339	0	0	9	4	2	15	10	3	0	296	0
M2	93	0	0	2	1	1	4	3	1	0	81	0
L1	108	0	0	3	1	1	5	3	1	0	94	0
L2	18	0	0	1	0	0	1	1	0	0	16	0
Total Plants	1,603	865	30	15	6	11	27	17	5	0	627	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.146: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICRSSM_High
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	55	45	3	0	0	1	0	0	0	0	5	0
VS2	83	69	5	0	0	1	0	0	0	0	8	0
S1	28	23	2	0	0	0	0	0	0	0	3	0
S2	26	21	0	0	0	0	0	0	0	0	4	0
S3	7	6	0	0	0	0	0	0	0	0	1	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	200	164	11	0	0	2	0	0	0	0	23	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.147: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICRSSM_High
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	377	312	24	0	0	4	0	0	0	0	38	0
VS2	181	150	11	0	0	2	0	0	0	0	18	0
S1	32	26	2	0	0	0	0	0	0	0	3	0
S2	20	16	0	0	0	0	0	0	0	0	3	0
S3	6	5	0	0	0	0	0	0	0	0	1	0
M1	3	0	0	0	0	0	0	0	0	0	3	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	0	0
Total Plants	620	509	37	0	0	7	0	0	0	0	67	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.148: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICRSSM_High
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	91	75	6	0	0	1	0	0	0	0	9	0
VS2	205	169	13	0	0	2	0	0	0	0	20	0
S1	123	101	8	0	0	1	0	0	0	0	12	0
S2	312	258	2	0	0	3	1	0	0	0	49	0
S3	316	262	2	0	0	2	1	1	0	0	49	0
M1	339	0	0	9	4	8	15	7	0	0	296	0
M2	93	0	0	2	1	2	4	2	0	0	81	0
L1	108	0	0	3	1	2	5	2	0	0	94	0
L2	18	0	0	1	0	0	1	0	0	0	16	0
Total Plants	1,604	865	30	15	6	21	26	13	1	1	627	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.149: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A3
Occurrence Distribution: ICRSSM_High
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	55	45	3	0	0	1	0	0	0	0	5	0
VS2	83	69	5	0	0	1	0	0	0	0	8	0
S1	28	23	2	0	0	0	0	0	0	0	3	0
S2	26	21	0	0	0	0	0	0	0	0	4	0
S3	7	6	0	0	0	0	0	0	0	0	1	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	200	164	11	0	0	2	0	0	0	0	23	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.150: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A3
Occurrence Distribution: ICRSSM_High
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	377	312	24	0	0	4	0	0	0	0	38	0
VS2	181	150	11	0	0	2	0	0	0	0	18	0
S1	32	26	2	0	0	0	0	0	0	0	3	0
S2	20	16	0	0	0	0	0	0	0	0	3	0
S3	6	5	0	0	0	0	0	0	0	0	1	0
M1	3	0	0	0	0	0	0	0	0	0	3	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	1	0	0	0	0	0	0	0	0	0	0	0
Total Plants	620	509	37	0	0	7	0	0	0	0	67	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.151: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICRSSM_Low
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	38	34	0	0	0	0	0	0	0	0	3	0
VS2	85	76	0	0	0	1	0	0	0	0	8	0
S1	51	46	0	0	0	0	0	0	0	0	5	0
S2	129	116	0	0	0	0	1	0	0	0	12	0
S3	131	118	0	0	0	0	1	0	0	0	12	0
M1	106	0	0	20	1	0	6	1	0	0	77	0
M2	29	0	0	5	0	0	2	0	0	0	21	0
L1	32	0	0	6	0	0	2	0	0	0	24	0
L2	5	0	0	1	0	0	0	0	0	0	4	0
Total Plants	606	391	0	33	2	2	13	2	0	0	165	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.152: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICRSSM_Low
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	23	20	0	0	0	0	0	0	0	0	2	0
VS2	35	31	0	0	0	0	0	0	0	0	3	0
S1	12	11	0	0	0	0	0	0	0	0	1	0
S2	11	10	0	0	0	0	0	0	0	0	1	0
S3	3	3	0	0	0	0	0	0	0	0	0	0
M1	0	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	83	74	0	0	0	1	0	0	0	0	8	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.153: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICRSSM_Low
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	157	141	0	0	0	2	0	0	0	0	14	0
VS2	75	68	0	0	0	1	0	0	0	0	7	0
S1	13	12	0	0	0	0	0	0	0	0	1	0
S2	8	7	0	0	0	0	0	0	0	0	1	0
S3	2	2	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	257	230	0	0	0	2	0	0	0	0	24	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.154: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICRSSM_Low
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	38	34	0	0	0	0	0	0	0	0	3	0
VS2	85	76	0	0	0	1	0	0	0	0	8	0
S1	51	46	0	0	0	0	0	0	0	0	5	0
S2	129	116	0	0	0	0	1	0	0	0	12	0
S3	131	118	0	0	0	0	1	0	0	0	12	0
M1	106	0	0	20	1	1	6	1	0	0	77	0
M2	29	0	0	5	0	0	2	0	0	0	21	0
L1	32	0	0	6	0	0	2	0	0	0	24	0
L2	5	0	0	1	0	0	0	0	0	0	4	0
Total Plants	607	391	0	33	2	3	12	1	0	0	165	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.155: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICRSSM_Low
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	23	20	0	0	0	0	0	0	0	0	2	0
VS2	35	31	0	0	0	0	0	0	0	0	3	0
S1	12	11	0	0	0	0	0	0	0	0	1	0
S2	11	10	0	0	0	0	0	0	0	0	1	0
S3	3	3	0	0	0	0	0	0	0	0	0	0
M1	0	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	83	74	0	0	0	1	0	0	0	0	8	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.156: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICRSSM_Low
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	157	141	0	0	0	2	0	0	0	0	14	0
VS2	75	68	0	0	0	1	0	0	0	0	7	0
S1	13	12	0	0	0	0	0	0	0	0	1	0
S2	8	7	0	0	0	0	0	0	0	0	1	0
S3	2	2	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	257	230	0	0	0	2	0	0	0	0	24	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.157: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICRSSM
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	43	39	0	0	0	0	0	0	0	0	4	0
VS2	98	88	0	0	0	1	0	0	0	0	9	0
S1	59	53	0	0	0	1	0	0	0	0	5	0
S2	149	134	0	0	0	0	1	0	0	0	13	0
S3	151	136	0	0	0	0	1	0	0	0	14	0
M1	124	0	0	22	1	0	7	1	0	0	91	0
M2	34	0	0	6	0	0	2	0	0	0	25	0
L1	38	0	0	7	0	0	2	0	0	0	28	0
L2	6	0	0	1	0	0	0	0	0	0	5	0
Total Plants	703	451	0	36	2	2	14	2	0	0	194	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.158: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICRSSM
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	26	23	0	0	0	0	0	0	0	0	2	0
VS2	40	36	0	0	0	0	0	0	0	0	4	0
S1	14	12	0	0	0	0	0	0	0	0	1	0
S2	12	11	0	0	0	0	0	0	0	0	1	0
S3	3	3	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	96	86	0	0	0	1	0	0	0	0	9	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.159: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICRSSM
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	181	163	0	0	0	2	0	0	0	0	16	0
VS2	87	78	0	0	0	1	0	0	0	0	8	0
S1	15	14	0	0	0	0	0	0	0	0	1	0
S2	10	9	0	0	0	0	0	0	0	0	1	0
S3	3	2	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	296	265	0	0	0	3	0	0	0	0	28	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.160: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICRSSM
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	43	39	0	0	0	0	0	0	0	0	4	0
VS2	98	88	0	0	0	1	0	0	0	0	9	0
S1	59	53	0	0	0	1	0	0	0	0	5	0
S2	149	134	0	0	0	0	1	0	0	0	13	0
S3	151	136	0	0	0	0	1	0	0	0	14	0
M1	124	0	0	22	1	1	7	1	0	0	91	0
M2	34	0	0	6	0	0	2	0	0	0	25	0
L1	38	0	0	7	0	0	2	0	0	0	28	0
L2	6	0	0	1	0	0	0	0	0	0	5	0
Total Plants	703	451	0	36	2	3	14	2	0	0	194	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.161: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICRSSM
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	26	23	0	0	0	0	0	0	0	0	2	0
VS2	40	36	0	0	0	0	0	0	0	0	4	0
S1	14	12	0	0	0	0	0	0	0	0	1	0
S2	12	11	0	0	0	0	0	0	0	0	1	0
S3	3	3	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	96	86	0	0	0	1	0	0	0	0	9	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.162: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICRSSM
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	181	163	0	0	0	2	0	0	0	0	16	0
VS2	87	78	0	0	0	1	0	0	0	0	8	0
S1	15	14	0	0	0	0	0	0	0	0	1	0
S2	10	9	0	0	0	0	0	0	0	0	1	0
S3	3	2	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	296	265	0	0	0	3	0	0	0	0	28	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.163: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICRSSM_High
Technology Selection Sensitivity: UV90-10

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	49	44	0	0	0	0	0	0	0	0	4	0
VS2	110	99	0	0	0	1	0	0	0	0	10	0
S1	66	59	0	0	0	1	0	0	0	0	6	0
S2	168	151	0	0	0	0	1	0	0	0	15	0
S3	170	153	0	0	0	0	1	0	0	0	15	0
M1	140	0	0	24	1	0	8	2	0	0	104	0
M2	38	0	0	7	0	0	2	0	0	0	29	0
L1	43	0	0	7	0	0	3	0	0	0	32	0
L2	7	0	0	1	0	0	0	0	0	0	5	0
Total Plants	791	506	0	40	2	3	16	3	0	0	220	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.164: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICRSSM_High
Technology Selection Sensitivity: UV90-10

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	29	26	0	0	0	0	0	0	0	0	3	0
VS2	45	40	0	0	0	0	0	0	0	0	4	0
S1	15	14	0	0	0	0	0	0	0	0	1	0
S2	14	12	0	0	0	0	0	0	0	0	1	0
S3	4	3	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	107	96	0	0	0	1	0	0	0	0	10	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.165: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICRSSM_High
Technology Selection Sensitivity: UV90-10

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	203	183	0	0	0	2	0	0	0	0	18	0
VS2	97	87	0	0	0	1	0	0	0	0	9	0
S1	17	15	0	0	0	0	0	0	0	0	2	0
S2	11	10	0	0	0	0	0	0	0	0	1	0
S3	3	3	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	333	298	0	0	0	3	0	0	0	0	31	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.166: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICRSSM_High
Technology Selection Sensitivity: UV90-10b

CWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology Selection Forecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	49	44	0	0	0	0	0	0	0	0	4	0
VS2	110	99	0	0	0	1	0	0	0	0	10	0
S1	66	59	0	0	0	1	0	0	0	0	6	0
S2	168	151	0	0	0	0	1	0	0	0	15	0
S3	170	153	0	0	0	0	1	0	0	0	15	0
M1	140	0	0	24	1	1	8	1	0	0	104	0
M2	38	0	0	7	0	0	2	0	0	0	29	0
L1	43	0	0	7	0	0	3	0	0	0	32	0
L2	7	0	0	1	0	0	0	0	0	0	5	0
Total Plants	791	506	0	40	2	4	16	2	0	0	220	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.167: Technology Selection for Filtered Plants

Conditions
Regulatory Alternative: A4
Occurrence Distribution: ICRSSM_High
Technology Selection Sensitivity: UV90-10b

NTNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	29	26	0	0	0	0	0	0	0	0	3	0
VS2	45	40	0	0	0	0	0	0	0	0	4	0
S1	15	14	0	0	0	0	0	0	0	0	1	0
S2	14	12	0	0	0	0	0	0	0	0	1	0
S3	4	3	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	0	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	107	96	0	0	0	1	0	0	0	0	10	0

Note: Sum of columns B through M may not add to column A.

Exhibit G.168: Technology Selection for Filtered Plants

Conditions

Regulatory Alternative: A4
Occurrence Distribution: ICRSSM_High
Technology Selection Sensitivity: UV90-10b

TNCWS

EPA Size Category	Total Plants Affected (Including Purchasers)	Technology SelectionsForecast (Number of Total Plants Selecting Different Technologies)										
		Bag Filter 1.0 LOG	Cartridge Filter 2.0 LOG	Combined Filter Performance 0.5 LOG	In-bank Filtration 1.0 LOG	MF/UF 2.5 LOG	O3 0.5 LOG	O3 1.0 LOG	O3 2.0 LOG	Secondary Filter 1 LOG	UV 2.5 LOG	WS Control 0.5 LOG
	A	B	C	E	F	G	H	I	J	K	L	M
VS1	203	183	0	0	0	2	0	0	0	0	18	0
VS2	97	87	0	0	0	1	0	0	0	0	9	0
S1	17	15	0	0	0	0	0	0	0	0	2	0
S2	11	10	0	0	0	0	0	0	0	0	1	0
S3	3	3	0	0	0	0	0	0	0	0	0	0
M1	1	0	0	0	0	0	0	0	0	0	1	0
M2	0	0	0	0	0	0	0	0	0	0	0	0
L1	0	0	0	0	0	0	0	0	0	0	0	0
L2	0	0	0	0	0	0	0	0	0	0	0	0
Total Plants	333	298	0	0	0	3	0	0	0	0	31	0

Note: Sum of columns B through M may not add to column A.