



Consumer Confidence Report (CCR) Rule Retrospective Review Summary

**U.S. Environmental Protection Agency
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1200 Pennsylvania Ave., N.W.
Washington, DC 20460**

Office of Water (4607M)

EPA 816-S-12-001

<http://epa.gov/safewater>

December 2012

Printed on Recycled Paper

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DEFINITIONS AND ABBREVIATIONS

DEFINITIONS

CCR iWriter – This on-line application provided by the EPA that enables a community water system to produce a regulation-compliant Consumer Confidence Report (www.ccriwriter.com).

Code of Federal Regulations (CFR) – A codification of the general and permanent rules published in the Federal Register by the departments and agencies of the Federal Government.

Community Water System – Means a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

Compliance monitoring – The EPA's drinking water standards program has established health-based standards for more than 90 contaminants. Water systems are responsible for conducting monitoring of drinking water to ensure that the water meets all drinking water standards.

Health-Based Violation – A violation of a National Primary Drinking Water Standard (e.g., maximum contaminant level.)

Maximum Contaminant Level (MCL) – The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration.

Maximum Contaminant Level Goal (MCLG) – The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.

Primacy agency – State, territory or Indian Tribe with primary enforcement responsibility for public water systems.

Primacy revision application – Pursuant to 40 CFR 141.12(b)(1), states, Tribal governments or territories must submit a complete and final request for approval of program revisions to adopt a new or revised EPA regulation. Requests must be submitted to the EPA Administrator no later than two years after promulgation of a regulation.

Public Notification (PN) – Public water systems must notify their consumers when they violate EPA or state drinking water regulations (including monitoring requirements) or otherwise provide drinking water that may pose a risk to consumer's health. SDWA § 1414 (c) & 40 CFR §§ 141.201 – 211.

Public water system (PWS) – Means a system for the provision to the public of water for human consumption through pipes or, after August 5, 1998, other constructed conveyances, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Such term includes: any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system; and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Such term does not include any “special irrigation district.” A public water system is either a “community water system” or a “noncommunity water system.”

Safe Drinking Water Act (SDWA) – The main federal law that ensures the quality of Americans’ drinking water. Under the SDWA, the EPA establishes standards and other requirements for the provision of drinking water and oversees the primacy agencies and public water systems who implement those requirements.

Treatment Technique – A required process intended to reduce the level of a contaminant in drinking water.

Uniform resource locator (URL) – A specific character string that when typed or copied into an Internet address box will take the user to a specific website or document.

ABBREVIATIONS

CCR: Consumer Confidence Report

CFR: Code of Federal Regulations

EPA: United States Environmental Protection Agency

ICR: Information Collection Request (as required by the Paperwork Reduction Act)

MCL: Maximum Contaminant Level

MCLG: Maximum Contaminant Level Goal

mg/L: Milligrams per Liter

MRDL: Maximum Residual Disinfectant Level

MRDLG: Maximum Residual Disinfectant Level Goal

NDWAC: National Drinking Water Advisory Committee

NPDWR: National Primary Drinking Water Regulation

PN: Public Notification

ppb: Parts per billion

ppm: Parts per million

SDWA: Safe Drinking Water Act

URL: Uniform resource locator

EXECUTIVE SUMMARY

In January 2011, President Obama issued Executive Order (EO) 13563 which charged each federal agency to “develop...a...plan, consistent with law and its resources and regulatory priorities, under which the agency will periodically review its existing significant regulations to determine whether any such regulations should be modified, streamlined, expanded, or repealed so as to make the agency’s regulatory program more effective or less burdensome in achieving the regulatory objectives.”¹ *EPA’s Final Plan for Periodic Retrospective Reviews* (the Plan), published August 2011, identified the Consumer Confidence Report Rule as one of the regulations to examine. The Consumer Confidence Report (CCR) Rule Retrospective Review was conducted so that the EPA could “explore ways to promote greater transparency and public participation in protecting the Nation’s drinking water in keeping with EO 13563’s directive to promote participation and the open exchange of information.” (US EPA, 2011)

The CCR is an annual water quality report that a community water system is required to provide to its customers. The CCR is a key element of the public right-to-know provisions in the Safe Drinking Water Act (SDWA) and the CCR Rule is the regulation that the EPA wrote to implement this SDWA provision. The CCR Rule requires community water systems to include the following information (and more) in their annual water quality report:

- The regulated contaminants detected during the community water system’s most recent round of monitoring (within five years), and the concentrations of these contaminants compared to regulatory levels (called maximum contaminant levels or MCLs),
- Health effects information related to violations of MCLs and treatment technique requirements, and
- For immunocompromised persons, specific health information about arsenic and nitrate when detected at certain levels, in addition to lead and its effects on children.

This information is provided to help consumers make informed decisions about their drinking water. It is a requirement in the CCR Rule that community water systems mail or otherwise directly deliver these reports to bill-paying customers.

Stakeholders commenting on the agency’s draft plan for retrospective reviews identified five areas for the CCR Rule Retrospective Review: 1) CCR understandability; 2) reporting MCLs in

¹ “Improving Regulation and Regulatory Review (Executive Order 13563).” 76 FR 3821 (January 21, 2011). Available from: the Government Printing Office’s Federal Digital System (FDsys): <http://www.gpo.gov/fdsys/pkg/FR-2011-01-21/pdf/2011-1385.pdf>; Accessed: 08/15/11.

numbers greater than or equal to 1.0; 3) reporting period for including a Tier 3 Public Notice (PN) in the CCR; 4) the certification of CCR delivery and content by the community water system to the primacy agency; and 5) electronic delivery of the CCR. This document summarizes the five areas and the associated feedback the agency received. It also presents potential follow-on actions, including CCR Rule revisions, which the agency could consider, as resources allow.

The agency received a wide array of feedback on the topic areas and ideas from commenters on changes that could allow for burden reduction for community water systems and/or primacy agencies as well as enhancing readability. CCR understandability describes commenters' perspectives on how understandable the CCR is for readers. Commenters also suggested that CCR certification compliance could be improved by aligning the certification and delivery reporting dates; however, the CCR Rule does not prevent this action so a rule change is not necessary. A possible burden reduction area identified was an adjustment of the Tier 3 public notice timeline to allow for a full year of Tier 3 public notices to be reported in the CCR. However, the public notice timeline was established in the SDWA and would require a statute change which is beyond the scope of the CCR Retrospective Review. Some commenters expressed concern with the requirement to report MCLs in units greater than 1.0. The concerns ranged from the units causing unwarranted alarm among consumers to some small systems having difficulty making the conversions to support for the use of the CCR units which allows for greater public understanding of the information in the report. The EPA found that the comments could mostly be addressed through training and guidance focusing on best practices and proper rule implementation.

During the CCR Rule Retrospective Review, most public comments received by the EPA were surrounding electronic delivery of the CCR. In response, the EPA released an interpretive memorandum called *Safe Drinking Water Act – Consumer Confidence Report Rule Delivery Options* along with an attachment entitled *Consumer Confidence Report Electronic Delivery Options and Considerations*. The memorandum outlines a framework for what forms of electronic delivery are and are not acceptable under the CCR Rule. In the attachment, the agency outlined two implementation approaches for electronic delivery: 1) Paper CCR delivery with an option to request an electronic CCR, or 2) Electronic CCR delivery with an option to request a paper CCR. The EPA also outlined five electronic delivery methods: 1) CCR embedded in an email message; 2) CCR sent as an attachment to an email, 3) URL linked directly to the CCR sent via email; 4) URL linked directly to the CCR mailed to customers (e.g., via water bill itself, water bill enclosure, separate mailing, etc.); and 5) additional electronic delivery methods that meet the definition of direct delivery.

Based on the EPA's analyses and input provided by stakeholders throughout the CCR Rule Retrospective Review, the agency does not intend to revise the CCR Rule at this time. The EPA

sees the framework for electronic delivery as an opportunity for long-term burden reduction for community water systems and primacy agencies while maintaining the integrity of the CCR and promoting greater transparency of drinking water information to all consumers receiving water from community water systems. A cost estimate analysis found that community water systems may find the greatest cost savings in the fewest years by providing a URL that links directly to the CCR included on customers' water bill statements.

In 2013, the EPA plans to host a webinar training on electronic delivery of CCRs as outlined in the interpretive memo and attachment and work with primacy agencies to assist community water systems that transition to CCR electronic delivery. In response to the other four topic areas explored during the CCR Rule Retrospective Review, the EPA may host another webinar training to review some of the best practices community water systems may want to incorporate into their own CCRs. As resources allow, the EPA may also update guidance, templates and factsheets to reflect what was learned during CCR Rule Retrospective Review.

THE CONSUMER CONFIDENCE REPORT RULE

RETROSPECTIVE REVIEW

THE CONSUMER CONFIDENCE REPORT

The Consumer Confidence Report (CCR) is a key element of the public right-to-know provisions in the Safe Drinking Water Act (SDWA) to provide transparency and accountability. The SDWA requires each community water system to mail to each customer at least once annually a report on the level of contaminants in the drinking water delivered by those systems. The SDWA requires CCRs to include at a minimum:

- Source(s) of water.
- Definition of the terms “maximum contaminant level goal,” “maximum contaminant level,” “variances” and “exemptions.”
- Any regulated contaminants detected and corresponding MCLGs, MCLs, level of detection in water system and for any regulated contaminant under violation of the MCL a brief statement in plain language regarding the contaminant health concerns.
- Compliance status with National Primary Drinking Water Regulations.
- Notification if the system is operating under a variance or exemption and the basis on which the variance or exemption was granted.
- Information on monitoring for Cryptosporidium, Radon and unregulated contaminants for which monitoring is required.
- Statement that presence of contaminants does not necessarily pose a health risk and that more information can be obtained by call the U.S. Environmental Protection Agency hotline.

The CCR Rule is the National Primary Drinking Water Regulation (NPDWR) that EPA wrote to implement Section 1414 of the SDWA. EPA promulgated the CCR Rule in August 1998. Community water systems were required to deliver their first reports by October 1, 1999, and thereafter by July 1st annually. The CCR Rule requires community water systems to include all required SDWA information and additional information in the annual water quality report including:

- A detected contaminant table to display information.
- Additional definitions for “treatment technique,” “action level,” “maximum residual disinfectant level goal” and maximum residual disinfectant level.”
- Specific health information about arsenic and nitrate when detected at certain levels, in addition to lead and its effects on children.

- A multilingual statement about the importance of the report as required following a primacy agency determination that there are large proportions of non-English speaking residents.
- Water system contact information.
- Ground water rule unaddressed significant deficiencies.

Along with CCR content requirements the CCR Rule establishes delivery requirements for community water systems. All community water systems must mail or otherwise directly deliver one copy of the CCR to customers by July 1st annually.

Community water systems serving fewer than 10,000 persons are required to mail or otherwise directly deliver these reports unless the Governor of a state, his or her designee or certain Tribal Leaders have allowed these community water systems to provide the reports by other means. Under this mailing waiver allowance community water systems serving fewer than 10,000 persons must publish the CCR in one or more local newspapers and inform the customers that the report will not be mailed. Community water systems serving 500 or fewer persons may provide notice at least once a year to their customers by mail, door-to-door delivery or by posting in an appropriate location that the CCR is available upon request.

All community water systems must also make a “good faith” effort to reach non-bill paying consumers through a mix of appropriate methods including posting on the Internet, mailing to postal patrons in metropolitan areas, advertising the availability of the report in the news media, posting in public places, etc. No later than three months following delivery of the CCR a community water system must certify to the primacy agency that the CCR was delivered to its customers and that the information contained within the CCR is correct and consistent with the compliance monitoring data previously submitted to the primacy agency.

EPA’S FINAL PLAN FOR PERIODIC RETROSPECTIVE REVIEW

In January 2011, President Obama issued Executive Order (EO) 13563 which charged each federal agency to “develop...a...plan, consistent with law and its resources and regulatory priorities, under which the agency will periodically review its existing significant regulations to determine whether any such regulations should be modified, streamlined, expanded, or repealed so as to make the agency’s regulatory program more effective or less burdensome in achieving

the regulatory objectives.”² *EPA’s Final Plan for Periodic Retrospective Reviews (the Plan)*, published August 2011, identified 35 regulations for review. Sixteen regulations were categorized as “early action” meaning the Agency identified specific steps which could lead to modifying, streamlining, expanding or repealing a regulation during the 2011 calendar year. The other 19 regulations would be reviewed over a longer time frame in order to assess whether actions leading towards revisions would be needed. Included in the list of 19 regulations is the Consumer Confidence Report Rule. This Rule was included in the Plan so that EPA could “explore ways to promote greater transparency and public participation in protecting the Nation’s drinking water in keeping with EO 13563’s directive to promote participation and the open exchange of information.” (US EPA, 2011)

During the development of the agency’s Draft Retrospective Review Plan in 2011, there were two opportunities for public comment as well as an opportunity for stakeholders to attend public meetings. Stakeholders identified five areas in the CCR Rule in which the EPA could potentially improve the effectiveness of communicating drinking water information to the public or reduce the burden of community water systems and primacy agencies. In the final version of the Plan, the EPA agreed to “look for opportunities to improve the effectiveness of communicating drinking water information to the public, while lowering the burden of water systems and states.” (US EPA, 2011) The five areas for the CCR Rule Retrospective Review include the following:

1. CCR understandability;
2. Reporting MCLs in numbers greater than or equal to 1.0;
3. Reporting period for including a Tier 3 Public Notice (PN) in the CCR;
4. The certification of CCR delivery and content by the community water system to the primacy agency; and
5. Electronic delivery of the CCR.

This document summarizes the five areas and the associated feedback the agency received. It also presents potential follow-on actions, including CCR Rule revisions, which the agency could consider, as resources allow.

CCR RULE RETROSPECTIVE REVIEW PROCESS

The EPA’s CCR Rule Retrospective Review consisted of two public listening sessions; an evaluation of primacy agency regulations on CCRs and Tier 3 public notices; market research on

² “Improving Regulation and Regulatory Review (Executive Order 13563).” 76 FR 3821 (January 21, 2011). Available from: the Government Printing Office’s Federal Digital System (FDsys): <http://www.gpo.gov/fdsys/pkg/FR-2011-01-21/pdf/2011-1385.pdf>; Accessed: 08/15/11.

the use of electronic delivery in the water sector and across other industries; a review of existing studies and surveys on the usefulness of the CCR and cost estimates for electronic delivery, as well as customers' CCR delivery method preference; and an analysis of potential cost savings associated with electronic delivery of CCRs. The EPA also convened an internal workgroup to consider stakeholder feedback and develop a strategy for the review. Documents supporting the CCR Retrospective Review may be found in Docket ID No. EPA-HQ-OW-2012-0035 (www.regulations.gov).

EPA held a CCR Rule Retrospective Review listening session in February 2012 in order to obtain feedback on the five areas mentioned above. Discussion questions pertaining to the five areas were presented in the web-dialogue listening session, and the public was provided an opportunity to submit comments through a dedicated website over a two-week period. In the online webinar that began the listening session, there were 678 attendees who participated. The web-dialogue drew in 697 participants and received a total of 630 comments. A second public listening session was held on October 1, 2012, in Arlington, VA, where the public could attend in person or participate in a listening only capacity via the Internet. The October 2012 meeting focused solely on issues involving the potential for electronic delivery of the CCR. This topic generated the greatest number of comments received by the EPA in the development of the Plan in 2011 and from the February 2012 listening session. The EPA solicited comment for 30 days on a draft document outlining potential electronic delivery methods and implementation approaches, and the agency received a total of 813 comments. (77 FR 55833, September 11, 2012)

The remainder of this document presents a summary of the issues identified by stakeholders and describes possible agency activities to address these issues.

CCR CONTENT UNDERSTANDABILITY

The purpose of the CCR is to provide customers with information from their water system that will enable them to make informed choices about their drinking water. SDWA Section 1414(c)(4)(A) requires the CCR regulation “to require...once annually a report on the level of contaminants in the drinking water purveyed by that system. Such regulations shall provide a brief and plainly worded definition of the terms... and brief statements in plain language regarding the health concerns that resulted in regulation of each regulated contaminant.” As drinking water standards are established then CCR content requirements are updated, thereby increasing the technical information found in the CCR.

In the preamble to the proposed CCR Rule, the EPA explained the importance and purpose of the CCR as a communication tool between community water systems and customers (63 FR 7605, February 13, 1998):

The Consumer Confidence Reports are the centerpiece of public right-to-know in SDWA. The information contained in these reports can raise consumers' awareness of where their water comes from, show them the process by which safe drinking water is delivered to their homes, [and] educate them about the importance of prevention measures such as source water protection to a safe drinking water supply. The reports can be a tool that starts a dialogue between consumers and their drinking water utilities, and one that gets consumers more involved in decisions which may affect their health. The information can be a means for consumers, especially those with special health needs to make informed decisions regarding their drinking water. And finally, the reports are a key to unlock more drinking water information. They will provide access through references or telephone numbers to source water assessments, health effects data, and additional information about the water system.

The EPA was aware of the potential complexity of the CCR and the information to be conveyed while developing the CCR Rule in 1998. During regulatory development, the EPA considered what violation information should be included without overwhelming the public. The EPA also requested public comment on what types of violations should be included in the CCR. In the preamble to the final CCR Rule (63 FR 44520, August 19, 1998), the EPA wrote:

The majority of commenters agreed that all violations, not just those posing a health risk, should be reported in the CCR. Commenters stated that increased awareness of violations would lead to increased compliance with regulations.

In the preamble to the final CCR Rule, the EPA also noted that focus groups were convened “to test various alternatives for the definitions of MCL and MCLG and to gauge the public's reactions to health effects statements. In addition, focus group participants were asked to give

their reaction to two consumer confidence reports that had actually been issued by community water systems.” (63 FR 44513, August 19, 1998) In developing the final CCR Rule, the EPA took into consideration the comments provided by the focus groups.

SUMMARY OF STAKEHOLDER FEEDBACK

During the CCR Rule Retrospective Review, the EPA received stakeholder feedback on the understandability of the CCR. That feedback is summarized below:

- **The information provided in the CCR can be confusing, misleading and alarming to some readers.**
 - Commenters on this issue stated that they found the required detected contaminant table confusing, because the table lacks an easy to understand interpretation of the results that explains what is in the water and what the associated health effects could be. Some suggestions from commenters to help make the detected contaminant table more understandable include the following:
 - Make the mandatory language shorter and easier to read; make the language less negative.
 - Reduce potential confusion by eliminating the requirement that all detected contaminants be listed in the table and only list contaminants for which the water system had health-based violations.
 - Some of the commenters stated that the health effects language currently required to be in the CCR may be disconcerting and frightening for the general public and not convey the level of health risks accurately. These commenters would prefer community water systems to have more flexibility in how the health effects language is worded in the CCR.
 - Some commenters suggested that when the EPA updates or writes new drinking water regulations that would add language to the CCR, the agency should carefully assess how new language would impact the complexity and readability of the CCR.
 - Some commenters suggested that the EPA update and strengthen existing guidance and templates for community water systems to improve the ability of customers to understand the CCR. Suggestions included:
 - Provide one clear statement on the CCR reporting if the water met the standards.
 - There should be a simple at-a-glance summary to indicate to the consumer if the water is safe, something similar to the Air Quality Index which provides color coded warnings of air quality conditions.

- **CCR is helpful and easy to understand.**
 - Some commenters noted that the CCR is not difficult to understand and strongly objected to the idea that the report should be shortened. These commenters expressed an interest in being provided greater details about water quality analyses and how their drinking water meets the standards.
 - Information was submitted indicating that CCRs have a beneficial impact on the consumers' view of the community water system and the quality of the water being provided by the community water system. In a 2011 American Water Works Association (AWWA) consumer survey presentation, the majority of respondents "somewhat agreed" that the CCR made them feel more confident in their water and they found the CCR "somewhat useful" in developing a better understanding of their water quality.

POTENTIAL FOLLOW-UP ACTIONS

Although commenters differed in their opinions about the understandability of the CCR the agency recognizes that measures could be taken to improve this aspect without a rule change. The EPA will consider taking the following actions to aid in the understandability of the CCR:

- Clarify the existing language or requirements for the CCR when other NPDWRs are updated.
- Identify and share examples of CCRs that convey information in a clear way.
- Review existing guidance manuals and templates to look for opportunities to improve the clarity of CCRs.

REPORTING MCLs IN NUMBERS GREATER THAN OR EQUAL TO 1.0

Before the CCR Rule was promulgated in 1998, the EPA met with many stakeholders and conducted focus groups on various proposed elements of the regulation. One of the topics of the focus groups was the public's understanding of MCLs less than 1.0 vs. numbers greater than or equal to 1.0. EPA stated the following in the preamble to the final rule (63 FR 44518, August 19, 1998):

As recommended by NDWAC [National Drinking Water Advisory Council], EPA proposed this requirement [reporting MCLs as numbers greater than or equal to 1.0] because it believes that whole numbers make it easier for consumers to compare the level of a contaminant in the system's water with the MCL. Many consumers have trouble understanding decimal points. This was evident in the focus groups, in which people found reports containing mostly whole numbers much easier to read than reports where the significant digits came after multiple zeros. AWWA [American Water Works Association] found similar results in its focus groups.

The CCR Rule requires community water systems to include in their CCRs a list of contaminants that are detected when sampling the water, as well as the associated MCLs and maximum contaminant level goals (MCLGs). While the MCLs included in the NPDWRs are typically shown as numbers less than 1.0, the CCR Rule requires the CCR to list an MCL as a number greater than or equal to 1.0, and all detected contaminants and MCLGs must be reported in the same units as the MCL (40 CFR § 141.153(d)(4)). For example, the MCL for cadmium is 0.005 milligrams per liter (mg/L) or parts per million (ppm) and must be reported as 5 parts per billion (ppb) in the CCR. A community water system with an average cadmium concentration of 0.0035 ppm must convert the results to ppb to report in the CCR. By multiplying the result by 1000 the community water system now reports its cadmium monitoring as 3.5 ppb as required in the CCR. The detected concentration result may, or may not, be greater than or equal to 1.0; however, it does need to be reported in the same unit as the MCL.

Appendix A of 40 CFR Part 141, Subpart O, provides a list of the contaminants that must be included in the CCR if detected by the community water system, their associated traditional MCLs (MCL units), the associated MCL expressed as a number greater than or equal to 1.0 (CCR units) and associated conversion factors to aid community water systems converting their analytical results to the appropriate CCR reporting units.

In 1999, the EPA issued a memorandum in response to a question about changing the requirement of reporting MCLs in numbers greater than or equal to 1.0 (US EPA, 1999):

At the Association of State Drinking Water Administrators (ASDWA) Winter Meeting, I [Cynthia Dougherty, Office Director of EPA Office of Ground Water and Drinking Water] was asked about the type of information and research that would be required before EPA would approve a CCR Rule primacy revision application that allowed MCL reporting in other than numbers greater than or equal to one. I responded that I would consider approval of such an application upon a good faith State effort showing the proposed reporting format is favored by the State's public over using numbers greater than or equal to one. I believe that there should be a high bar for public involvement for changing the reporting format for detected contaminants. Public involvement should include documented focus group research. This research should target members of communities served. Representatives from water systems and other drinking water professionals can be involved in the research, but they should not be considered the target audience. If the process shows that consumers find an alternative MCL format easier to understand, I would consider approving a State primacy revision application including that format. Thus far no State has tried to make this demonstration.

At the time this summary document was published, EPA was not aware of any primacy agency that approached EPA to change the requirement.

SUMMARY OF STAKEHOLDER FEEDBACK

The following discussion highlights key concerns expressed by stakeholders on the topic of reporting CCR units:

- **Numbers greater than 1.0 may give some consumers a false impression of greater contamination.**
 - Some commenters noted that reporting a result as a number greater than 1.0 might give the false impression that there is a larger quantity of a contaminant in the drinking water. For example, 29 ppb of arsenic seems like a larger amount of arsenic than 0.029 ppm of arsenic.
 - One commenter noted that a more simple explanation should be included in the CCR regarding the units of measure. A suggestion was to define ppm as “1 drop in 1 million gallons” and ppb as “1 drop in 1 billion gallons” so consumers would understand that ppb is a very small amount.

- **Laboratories often report results in a different concentration unit (according to the MCL unit) than what is required in the CCR (CCR unit).**
 - Laboratories report concentrations in units according to the MCL, or MCL units, which is often less than 1.0. The community water system must convert the

laboratory result before reporting it in the CCR. Some community water systems find the conversion to be a burden.

- **Numbers greater than 1.0 are easier for consumers to understand.**
 - Other commenters supported the use of units greater than 1.0 if other EPA-required reporting became consistent with CCR units.
- **There may be confusion about different units being reported in different public outreach materials.**
 - Commenters mentioned that MCLs are often presented in many information sources, (e.g., public notices or fact sheets) in different concentration units than the units required in the CCR Rule. For instance, a public notice may report MCLs and analytical results in mg/L, or ppm, which typically means the MCL and analytical results will be reported as numbers less than 1.0. Whereas, when reporting the same contaminant in the CCR the MCL and analytical results are in ppb, which will result in the values being reported as a number greater than or equal to 1.0. This could cause confusion between the public notice and CCR, because consumers may not notice that the units are different and read different results.
- **Some community water systems inaccurately perform the unit conversions.**
 - Primacy agencies noted that they had observed conversion problems when a community water system converts the analytical results from MCL units to numbers that are greater than 1.0, especially from smaller community water systems.

POTENTIAL FOLLOW-UP ACTIONS

At this time, the EPA does not intend to make any changes to the way MCLs or contaminant concentrations are reported in the CCR. However, there are some actions that could be taken to enhance the understanding of CCR units:

- As noted above, primacy agencies can conduct the research needed to change the requirement in their own state, without a federal regulatory change. Some primacy agencies may no longer be aware of this memo, so the EPA will work to promote awareness of the guidance to primacy agencies.
- The EPA has included a table in 40 CFR Part 141, Subpart O, Appendix A, with the MCLs converted to values greater than 1.0. This information is also available on the EPA website on the CCR Rule Compliance Help webpage - <http://water.epa.gov/lawsregs/rulesregs/sdwa/ccr/compliancehelp.cfm>. The agency may

consider providing a factsheet on how to perform the numerical conversions and/or promote awareness (e.g., encourage more community water systems, specifically small community water systems, to use the CCR iWriter to create the CCR, and calculate the unit conversion in order to reduce the burden on the community water system creating the CCR.)

REPORTING TIER 3 PUBLIC NOTICE IN THE CCR

The Public Notification (PN) Rule requires public water systems to notify their customers when they violate drinking water standards and regulations (including monitoring requirements) or otherwise provide drinking water that may pose a risk to consumer's health. 40 CFR §§141.201-211. The PN Rule specifies three categories or tiers of public notification.

- A Tier 1 notice is required for violations or situations that have significant potential to have serious adverse effects on human health as a result of short-term exposure. Water systems have 24 hours to notify people who may drink the impacted water.
- A Tier 2 notice is required any time a water system provides water with levels of a contaminant that exceed drinking water standards or that has not been treated properly, or that has a significant potential to have serious adverse effects on human health. Water systems must provide a Tier 2 notice as soon as possible, but within 30 days of learning of the violation or situation.
- A Tier 3 notice is required for all other violations (e.g., failure to monitor or comply with established testing procedure) or situations not included in Tier 1 or Tier 2. The water system has up to 12 months from the date of the violation to provide a notice of this situation to its customers.

The PN Rule allows community water systems to use the CCR to meet Tier 3 PN requirements (both initial and repeat notices) as long as the CCR is provided to customers no later than 12 months after the community water system learns of the Tier 3 violation. 40 CFR § 141.204(d).

In the preamble of the final CCR Rule (63 FR 44520, August 19, 1998) the EPA discussed the duplication of effort that may occur using the CCR to issue PN:

The [SDWA] Statute clearly requires some duplication between CCR and PN requirements since both provisions mandate reporting of violations. Since neither the PN nor the CCR can assure complete notification of all consumers, in many instances the information will not be repetitive for the public. The Agency will explore in its revisions to the PN rule the feasibility of allowing the CCR to serve as PN for some violations, thereby eliminating some duplication. States can use their authority to promulgate alternative requirements in accordance with Sec. 141.151(e) to modify this requirement for the purpose of their final regulation.

In 2000, when the EPA revised the Public Notification Rule, the agency looked for opportunities to combine Tier 3 PN and the CCR. In response to the timing of the notices not aligning to allow for 12 months of Tier 3 PN inclusion in the CCR, the EPA wrote the following in the preamble to the Public Notification Rule revision (65 FR 25982, May 4, 2000):

In response to comments that EPA should change the public notice requirements to better fit into the format and content of the CCR, EPA believes such changes would undermine the intent of the public notice. EPA is also limited by the specific timing, delivery, and content requirements of the public notification provisions in the SDWA, as amended. Because EPA encourages water systems to use the CCR where possible, EPA investigated ways to extend the deadline for Tier 3 notices to 18 months. EPA concluded such a change could not be made in the rule because the 12-month period is clearly required by statute. This limits the use of the CCR as the initial public notice to only those violations occurring within 12 months of the CCR publication. Practically, this means that for CCRs published on July 1 (as required under the CCR rule), the CCR could only be used as the initial public notice for violations that occurred after July 1 of the previous year.

The CCR Rule Retrospective Review investigated the burden reduction achieved by use of the CCR to meet Tier 3 PN requirements. The Review considered burden reduction for both community water systems and primacy agencies that provide oversight of the use of CCRs for reporting Tier 3 PNs.

While reviewing primacy agency regulations, the EPA found that most primacy agencies allow the use of the CCR to distribute Tier 3 PN. Two primacy agencies do not allow the Tier 3 PN to be distributed through the CCR as the primacy agency regulations have a shorter time frame than the federal regulation for issuing a Tier 3 PN.

There are three primacy agencies that do not use the same tiering nomenclature as the federal PN Rule, and have instances described in their regulations allowing community water systems to use the CCR to issue public notification if the CCR is distributed within 12 months of the “Tier 3 type” violation. One of these primacy agencies requires a shorter timeframe for issuing monitoring PN so it does not permit initial notification to be distributed through the CCR; however, repeat notices are allowed.

SUMMARY OF STAKEHOLDER FEEDBACK

Although community water systems expressed a general appreciation for the ability to use the CCR as the vehicle to report Tier 3 PN, there were some implementation issues that were identified by commenters:

- **Concerns with the reporting timeline of Tier 3 PNs.**
 - The requirement that Tier 3 PNs are issued within 12 months of the violation was identified by community water systems as the biggest obstacle to reporting Tier 3 PNs via the CCR. The production time needed in order to distribute the CCR by July 1 further prevents a full year of violations to be included in the CCR (e.g., a Tier 3

notice cannot be included in the 2012 CCR delivered by July 1, 2013, if the violation occurred in 2012 any time prior to July 2, 2012.)

- Commenters suggested extending the time allowed for reporting Tier 3 PNs in the CCR beyond 12 months (e.g., 18 months) so that a full calendar year of violations could be reported in the CCR.
- **There is a potential for improper implementation of Tier 3 PN using CCR.**
 - Some primacy agencies indicated that not all community water systems appear to understand how to incorporate a Tier 3 PN into the CCR. For example, some community water systems do not include all of the required information for the Tier 3 PN language in the CCR. This can result in additional primacy agency burden by requiring the community water system to reissue the CCR with the full PN language.
 - One recommendation by a commenter was to encourage community water systems to attach the Tier 3 PN, as a separate document, to the CCR. In addition, more education regarding the requirement to include all information required for a Tier 3 PN in the CCR may be needed.
- **Primacy agencies may experience a burden to track CCR and PN implementation.**
 - Primacy agencies noted that there can be significant resources used to track public notices and CCRs.
 - The opinions on the usefulness of the CCR to deliver Tier 3 PN to reduce burden were mixed. Some primacy agencies stated that the same resources and procedures are used whether the PN is distributed separately or with the CCR. Other primacy agencies noted that the oversight burden increases when the CCR is used to report a Tier 3 public notice.

POTENTIAL FOLLOW-UP ACTIONS

The PN timeframe established in the SDWA cannot be addressed by the EPA through this retrospective review. The agency will consider the following suggestion that may help community water systems (providing notice for violations after July 1st of the previous year) understand how to properly incorporate a Tier 3 public notice into the CCR:

- EPA could host an annual webinar on CCR requirements for community water systems and include discussions on proper incorporation of the Tier 3 PN language and distribution requirements. For example, a best practice of attaching a completed Tier 3 public notice to a CCR does not require reformatting of the CCR reducing production time. The webinar could also demonstrate how community water systems can use the PN

iWriter and/or CCR iWriter to efficiently create their own CCRs and Tier 3 public notices.

CERTIFICATION OF CCR DELIVERY AND CONTENT BY THE COMMUNITY WATER SYSTEM TO THE PRIMACY AGENCY

The CCR Rule requires a community water system to certify to its primacy agency that the CCR has been distributed to its customers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the primacy agency. 40 CFR § 141.155(c). Under the CCR Rule a community water system is required to send the CCR to customers no later than July 1 of each year and the certification must be sent to the primacy agency within three months of CCR distribution each year. Approximately 13 primacy agencies require community water systems to submit their certifications sooner than that required by the federal regulation.

The CCR Rule certification requirement provides flexibility for primacy agencies and community water systems regarding how to certify. EPA does provide example certification forms which primacy agencies can use and adapt to their own drinking water programs in the *CCR State Implementation Guidance* (EPA 816-R-09-010, April 2010). Also, there are examples of certification forms in *Preparing Your Drinking Water Consumer Confidence Report* (EPA 816-R-9-011, April 2010).

SUMMARY OF STAKEHOLDER FEEDBACK

Feedback pertaining to the certification requirement that EPA received from community water systems, primacy agencies and other stakeholders includes the following:

- **There are existing approaches to minimize the CCR certification burden for community water systems.**
 - Some primacy agencies noted that they accept a variety of certification forms and also allow certification to be provided via email.
 - Some primacy agencies and community water systems suggest that the CCR delivery and certification deadlines should be the same date so that community water systems are less likely to forget to send the certification to the primacy agency. Primacy agencies may see a reduction in burden as there would be no duplication of effort tracking both the CCR and the certification submissions separately. In addition, there could be an implementation burden reduction by making the CCR and certification due on the same date.

- **The importance of CCR certification.**
 - Some primacy agencies viewed certification as a means to ensure the CCR is delivered while others found tracking certification an unnecessary burden.

POTENTIAL FOLLOW-UP ACTIONS

Implementing some of the suggestions above (e.g., one deadline) would require a change in the federal regulation. Federal regulation does not hinder a community water system from submitting the CCR and certification to the primacy agency at the same time. The EPA is currently documenting these suggestions and considering potential actions that may help alleviate burden on community water systems and primacy agencies.

ELECTRONIC DELIVERY OF THE CCR

The CCR Rule requires all community water systems to “mail or otherwise directly deliver” a CCR to each customer by July 1 annually. 40 CFR § 141.155(a). Each community water system must also make a “good faith effort” to reach consumers who do not receive water bills by using other means recommended by the primacy agency. A good faith effort to reach consumers should include a mix of appropriate methods including posting on the Internet, mailing to postal patrons in metropolitan areas, advertising the availability of the report in the news media, posting in public places, etc. 40 CFR §141.155(b).

Over the past few years, a number of community water systems, technical service providers and primacy agencies have inquired as to whether the current rule allows electronic delivery of the CCR to each customer. During the development of the EPA’s Retrospective Review Plan in 2011, stakeholders noted that there has been an increase in the number and types of communication tools since 1998 when the CCR Rule was promulgated. They also suggested that a community water system could reduce mailing and printing costs and perhaps improve readership if the CCR Rule allows electronic delivery of CCRs in lieu of postal delivery.

In section 141.155(a) of the proposed CCR Rule, the language regarding direct delivery stated “each community water system must mail one copy of the report to each customer.” When the proposed rule was released to the public, commenters suggested changing this language because they felt it was too specific. As a result of these comments, the EPA modified the CCR delivery language in the final CCR Rule and provided the following response in the preamble of the final Rule (63 FR 44521, August 19, 1998):

In response to comments, some minor modifications have been made to this section. First, commenters argued that as written, Section 141.155(a) [of the proposed CCR Rule] implied that systems could use only the U.S. Postal Service to deliver reports to customers. EPA agrees that other means of delivering the reports could be used as long as reports get into customers' homes. For example, a system's water meter readers could deliver the reports. Therefore, the regulations now state in § 141.155(a) that reports must be mailed or otherwise directly delivered to the customer.

Another indication that other forms of delivery may be allowed under the CCR Rule is found in the Conference Report for the 1996 SDWA amendments (a joint statement from the House and Senate about the bill.) The Report states that it is congressional intent that the EPA may allow the CCR requirement "to be satisfied by a means other than postal delivery, such as personal

delivery or electronic mail, if the Administrator determines that the alternative means will provide equivalent notice to individual customers³." This statement confirms the reading of both the SDWA statute and CCR regulations that "mail" and "directly deliver" are not limited to post office or hand delivery.

Therefore, during the CCR Rule Retrospective Review, EPA evaluated several electronic delivery methods to determine which forms meet existing CCR Rule requirements.

SUMMARY OF STAKEHOLDER FEEDBACK

The EPA received public feedback on issues surrounding electronic delivery of CCRs through its web-dialogue in February 2012 and public meeting in October 2012. The following points were made by commenters:

- **Production and mailing costs are expensive.**
 - Water systems do not include additional information beyond the mandatory language, because of the costs of delivery and production of the reports.
 - The provision requiring that CCRs be put into the newspaper is not always a burden reduction, and in many cases the cost of putting the entire CCR in the paper costs more than printing and mailing to customers.
- **There are technological concerns regarding email-based delivery methods.**
 - Community water systems may find it difficult to collect and maintain up-to-date email addresses. Those community water systems with customer email addresses typically have an e-billing program; however, even these community water systems typically do not have email addresses for all of their customers.
 - Some commenters expressed concern over receiving their CCR through email versus an Internet URL citing technology issues (e.g., limited bandwidth, incompatible computer software, and email viruses.)
 - Stakeholders encouraged the EPA to consider future technologies for electronic delivery.
- **Allow community water systems to have multiple electronic delivery options available.**
 - The exact combination of options used will vary from water system to water system, but the commenters stated that they believed that their water system would provide the options to their customers which would work best in their community.

³ Joint Explanatory Statement of the Committee on Conference, Safe Drinking Water Act Amendments of 1996, S. Rep. No. 104-192 (1996), at 4.

- Commenters were interested in a variety of electronic delivery methods from separate mailings, in customer bills and through emails.
- **Electronic delivery provides multiple advantages to customers.**
 - There may be a cost savings from not having to mail and print the CCRs, and there may be a reduced environmental impact as less paper and ink are used.
 - Electronic delivery allows water systems to improve their communications with their customers. The CCR is available online for a customer at all times to read when it is convenient for them. The CCR can be posted on a water system's website where customers can also find other valuable information.
 - Those who receive their bills electronically also would prefer to receive their CCR electronically.

The EPA requested feedback on the draft document entitled *Consumer Confidence Report Electronic Delivery Options and Considerations*. The agency outlined two possible implementation approaches for electronic delivery:

1. Paper CCR delivery with an option to request an electronic CCR, or
2. Electronic CCR delivery with an option to request a paper CCR.

EPA also outlined five possible electronic delivery methods:

1. CCR embedded in an email message;
2. CCR sent as an attachment to an email;
3. URL linked directly to the CCR sent via email;
4. URL linked directly to the CCR mailed to customers (e.g., via water bill itself, water bill enclosure, separate mailing, etc.); and
5. Additional electronic delivery methods that meet the definition of direct delivery.

EPA received approximately 830 comments from the public on the draft document or the topic of electronic delivery of the CCR. The following is a brief summary of the comments received:

- Community water systems may provide more information to consumers about water quality, research and additional information not required by the CCR Rule since they are not restricted by paper size or a printing budget.
- Many commenters indicated that there would be a large cost savings for a community water system not providing paper CCRs.
- Commenters stated that electronic delivery would save natural and monetary resources. Others believed that managing an email address database may offset some of the cost savings from reduced printing and mailing.

- CCRs may be distributed faster and be easier to update. Some community water systems indicated they would provide up-to-date water quality data on their websites if they did not have to print and mail a paper CCR to customers, unless requested.
- Many community water systems favored printing the direct URL on the water bill statement as their preferred electronic delivery method.
- Commenters appreciated that the EPA allowed for a variety of the methods and approaches so that the best method(s) could be found for both the community water system and customers.
- Some commenters stated that electronic delivery offers a new opportunity to engage customers who may currently ignore the paper version of the CCR but prefer reading information electronically.
- Commenters recommended that the EPA specify the location and size of a direct URL on a bill to avoid small print that may go unnoticed by consumers. It was suggested that the EPA ensure that the direct URL be simple, short and prominent on all CCR notifications.
- Some stakeholders expressed concern that low-income neighborhood residents may not have Internet access in their home and may be more at risk of having lower quality water. In addition, these individuals may not receive their CCRs if they are only delivered electronically.
- Some commenters stated that EPA's draft *CCR Electronic Delivery Options and Considerations* document did not provide strong enough standards, because it is guidance.
- Others indicated that customers may not want the CCR cluttering their email inbox and would prefer a paper version of the CCR.

CCR RETROSPECTIVE REVIEW ACTIONS ON ELECTRONIC DELIVERY

The EPA issued an interpretive memorandum at the conclusion of the retrospective review clarifying the requirements of the CCR Rule associated with the delivery of the CCR. The memorandum's attachment, *Consumer Confidence Report Electronic Delivery Options and Considerations*, provides an overview of electronic delivery methods and describes approaches for community water systems that want to implement electronic delivery. It is important to note that the attachment document provides a framework of information, recommendations and interpretations of existing CCR Rule provisions. It is not a rulemaking action and does not add to or replace any existing CCR Rule requirements. It also does not supersede any additional primacy agency requirements for content or delivery of CCRs. The interpretive memorandum and attachment can be found on the EPA website at <http://water.epa.gov/lawsregs/rulesregs/sdwa/ccr/regulations.cfm>.

The EPA notes that delivery of a paper CCR may still be the most appropriate option for some community water systems and their customers. Community water systems should consider a combination of delivery methods based on available technology and the preferences of their customer base. The EPA recommends that community water systems provide options for their customers that are cost-effective and practicable for the community water system as well as convenient for their customers. In addition, the EPA recommends that primacy agencies reach out to their community water systems and provide assistance to ensure that methods of electronic delivery being considered by community water systems meet CCR Rule requirements.

ELECTRONIC DELIVERY COST SAVINGS ANALYSIS

The EPA evaluated existing studies and comments received to understand potential cost savings associated with electronic delivery of CCRs, including an estimate of the point at which a community water system may break even or realize a savings benefit from delivering a percentage of CCRs electronically. This analysis applies to three generic community water systems with variable preexisting technological capabilities and three different system size categories. Appendix A to this document summarizes assumptions and provides detailed cost calculations used to estimate costs associated with electronic delivery.

CONCLUSION AND NEXT STEPS

Based on the EPA's analyses and the input provided by stakeholders throughout the CCR Rule Retrospective Review, the agency does not intend to revise the CCR Rule at this time. The interpretive memorandum and attachment establish the framework for community water systems to utilize electronic delivery of CCRs. The EPA sees this as an opportunity for long-term burden reduction for community water systems and primacy agencies while maintaining the integrity of the CCR and promoting greater transparency of drinking water information to all consumers receiving water from community water systems.

In 2013, the EPA plans to host a webinar on electronic delivery of CCRs as outlined in its interpretive memorandum. In addition, the EPA will work with primacy agencies to assist community water systems that transition to CCR electronic delivery.

Other activities that the EPA may undertake include the following:

- Provide additional training and resources as issues are identified when community water systems begin electronic delivery of CCRs according to the EPA framework.
- Host an annual webinar on the CCR for community water systems that would include the use of the CCR iWriter so that community water systems can more efficiently create their own CCRs. Some topics that may be addressed include proper incorporation of the Tier 3 PN language and distribution requirements, unit conversions for the CCR and how to make the CCR more understandable for consumers.
- Provide additional or update current factsheets on how to perform the numerical conversions. The EPA could also promote awareness of the table in Appendix A of 40 CFR Part 141, Subpart O, which provides the MCLs in CCR units and provides conversion factors so the community water system knows how to convert each analytical result to the correct unit. The guidance could encourage more community water systems, specifically small community water systems, to use the CCR iWriter which is designed to calculate the unit conversion in order to reduce the burden on the community water systems creating the CCR.

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APPENDIX A: CONSUMER CONFIDENCE REPORT ELECTRONIC DELIVERY COST SAVINGS ANALYSIS

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Attachment 5: CWS Scenario Breakeven Points and First Year Cost Difference Analyses for Approach 1

Attachment 6: CWS Scenario Breakeven Points and First Year Cost Difference Analyses for Approach 2

INTRODUCTION

In an effort to determine the costs for a community water system (CWS) to transition to CCR electronic delivery, the EPA conducted a cost savings analysis to estimate the expected costs and breakeven points for CWSs choosing one of the CCR electronic delivery methods for bill paying customers.

This analysis focused on:

1. Gathering available information regarding customers' preferred CCR delivery method;
2. Determining the expected percentage of customers who would participate in CCR electronic delivery;
3. Determining factors which could influence a CWS's initial investment to transition to electronic delivery;
4. Estimating the first year's costs for a CWS to commence electronic delivery of the CCR; and
5. Estimating the subsequent years' costs and a breakeven point when a CWS recoups the initial investment costs for CCR electronic delivery.

The methods for electronic delivery examined in this cost savings analysis are:

- Mail – notification on a utility bill or separate mailing that the CCR is available – CWS mails each bill-paying customer a notification that the CCR is available and provides a direct website address (URL) to the CCR where it can be viewed. The URL must not navigate to a webpage that requires a customer to search for the CCR. The direct URL webpage must display all minimum information on one scrolling webpage or connect to the viewable electronic file (e.g., PDF document.) The mail method for the notification may be, but is not limited to, a water bill insert, statement on the water bill or community newsletter.
- Email direct URL to CCR – CWS emails a direct URL to the CCR on a publicly accessible website. The direct URL webpage must display all minimum information on one scrolling webpage or connect to the viewable PDF document. The URL must not navigate to a webpage that requires a customer to search for the CCR.
- CCR sent as an attachment to an email – CWS emails the CCR as an electronic file email attachment (e.g., PDF.)
- CCR sent as an embedded image in an email – CWS emails the CCR text and tables inserted into the body of an email (not as an attachment.)

Appendix A describes the results of the cost savings analysis to estimate the expected costs and breakeven points for CWSs transitioning to electronic delivery.

DATA SOURCES

For the number of CWSs, population served, service connections and CCR preparation costs, the EPA used the December 2011 Final Public Water System Supervision Program Information Collection Request (PWSS ICR).

Data sources for customers' preference for CCR delivery included two recent studies, one commissioned by the American Water Works Association (AWWA) and a CCR Pilot Project coordinated by the Minnesota Department of Health (MDH). These documents may be found in Docket ID No. EPA-HQ-OW-2012-0035 (www.regulations.gov).

THE 2011 PUBLIC WATER SYSTEM SUPERVISION INFORMATION COLLECTION REQUEST

The 2011 PWSS ICR examines public water supply, primacy agency, laboratory and EPA burden and costs for recordkeeping and reporting requirements for the PWSS Program, which includes the CCR Rule. Information from Appendix B of the document was used to calculate the expected costs and return on investment timeframe (breakeven points) for CWSs that choose to transition to CCR electronic delivery for a portion of their customers.

THE 2011 AWWA CUSTOMER SURVEY

AWWA commissioned an electronic survey, conducted by Knowledge Networks, to canvas 2,348 CWS customers regarding their preferred CCR delivery method. Customer responses to the surveys were then aggregated to determine the respondents' preference for either electronic or paper delivery. An electronic delivery preference indicates that a customer prefers to access the CCR in an electronic format, and a paper delivery preference indicates that a customer prefers to access the CCR in paper format.

The following delivery methods were aggregated into the electronic category:

- Online at water utility website
- A postcard or other mailing (this method was assumed to be similar to a separate mailing with a URL notification)

The following delivery methods were aggregated into the paper category:

- Mailed to my residence
- CCR in major newspaper

There was also a portion of customers who did not want to receive their CCR in either an electronic or paper format. These customers were categorized as “no preference.” This analysis assumes that these customers take no action and accept the CCR being delivered in either format.

The following delivery methods were placed in the “no preference” category:

- Newspaper notice reporting whether my water met all of the regulations
- Posted notice at water utility’s office
- Don't want or don't need

The delivery methods presented to customers and the results of the survey are shown in Table 1:

Table 1: AWWA 2011 Customer Survey Results – Delivery Method Preferences

Delivery Method	Percent of Respondents Choosing Method*	Electronic or Paper Preference	Total Percentage for each Preference
Online at water utility website	13.9	Electronic	26.4
A postcard or other mailing	12.5	Electronic	
Mailed to my residence	49.2	Paper	52.8
CCR in major newspaper	3.6	Paper	
Newspaper notice reporting whether my water met all of the regulations	3.5	No Preference	20.1
Posted notice at water utility’s office	1.1	No Preference	
Don’t want or don’t need	15.5	No Preference	

*AWWA Customer Survey Presentation results did not result in a 100% but totaled to 99.3%.

THE 2012 MDH CCR PILOT PROJECT SURVEY

The MDH administered a post-CCR delivery customer survey in 2012 as part of a CCR Electronic Delivery Pilot Project. Almost 6,000 surveys were delivered to a number of randomly selected customers with an 11.9 percent return rate. Customer responses to the surveys were then aggregated to determine the respondents’ preference for either electronic or paper delivery. An electronic delivery preference indicates that a customer prefers the CCR is delivered in an electronic format, and a paper delivery preference indicates that a customer prefers the CCR is delivered in paper format.

The following delivery methods were aggregated into the electronic category:

- URL notice via postcard or bill insert/stuffer

- Email/E-Bill notification (Note: These customers also received a paper CCR during the pilot project.)

The following delivery methods were aggregated into the paper category:

- Paper CCR
- CCR in community newsletter/local paper

There was also a portion of customers who did not want to receive their CCR in either an electronic or paper format. These customers were categorized as “no preference.” This analysis assumes that these customers would take no action and accept the CCR being delivered in either format.

The following delivery methods were placed in the no preference category:

- Other

The delivery options presented to customers in this survey and the results of the survey are shown in Table 2:

Table 2: MDH 2012 Customer Survey Results – Delivery Method Preferences

Delivery Method	Percent of Respondents Choosing Method	Electronic or Paper Preference	Total Percentage for each Preference
URL notice via postcard or bill insert/stuffer	11.0	Electronic	46.1
Email/E-Bill notification	35.1	Electronic	
Paper CCR	42.3	Paper	51.6
CCR in community newsletter/local paper	9.3	Paper	
Other	2.3	No Preference	2.3

AWWA SURVEY AND MDH SURVEY COMPARISONS

Since the two surveys did not present the same delivery options to CWS customers, the results of the surveys were used in the cost savings analysis to bracket a range of potential costs for CWSs.

CCR DELIVERY APPROACHES

Once a CWS identifies appropriate CCR electronic delivery methods, it next needs to consider an approach for electronic delivery. With stakeholder input, the EPA analyzed different delivery approaches and identified two that meet the CCR Rule requirements to “mail or otherwise directly deliver.” The two approaches were:

- Paper CCR Delivery with a Customer Option to Request an Electronic CCR (Approach 1)
- Electronic CCR Delivery with a Customer Option to Request a Paper CCR (Approach 2)

Each approach should be considered by the CWS to determine how best to directly deliver the CCR to its bill-paying customers. CWSs may also find it best to use a phased approach over time when transitioning from paper delivery to electronic delivery. This document presents a general summary of CCR electronic delivery approaches. Please see the *Safe Drinking Water Act - CCR Electronic Delivery Options* memo and *CCR Delivery Options and Considerations* attachment for more information regarding electronic delivery methods and approaches.

APPROACH 1

One approach to an electronic delivery program is to provide paper CCR delivery, but also allow customers to choose to receive an electronic version of their CCR instead. Under this approach, a CWS would notify its customers of the availability of electronic delivery of the CCR. This notification could be accomplished through a variety of methods including, but not limited to, the water bill, a separate mailing, a CWS’s website or other means. Customers who do not identify a preference for electronic delivery would continue to receive a paper CCR.

Based on the AWWA and MDH survey results, the EPA anticipates that a portion of the customer base would specifically choose a paper or electronic version, but others would have no preference. The percentages from each survey are shown in Table 3:

Table 3: Paper CCR Delivery with a Customer Option to Request an Electronic CCR – AWWA and MDH Survey Preferences

Delivery Option	AWWA Percentages	MDH Percentages
Paper	72.9%	53.9%
Electronic	26.4%	46.1%

The larger difference in percentages between the MDH and AWWA surveys is due to the percentage of those in each survey who fall under the no preference option. The no preference option for the AWWA survey is 20.1 percent, while for the MDH survey is 2.3 percent. It was assumed that these customers would not take the extra step to request a CCR in a different format. Therefore, these percentages were

included in the paper preference category, so under this delivery approach, those with no preference continue to receive a paper CCR. As a result, fewer customers are receiving CCRs electronically in Approach 1 based on the AWWA data than on the MDH data.

APPROACH 2

A second approach for a CCR electronic delivery program is to provide CCRs electronically to customers while still offering an option to request a paper CCR. Under this approach, the CWS establishes electronic delivery methods which consider its customers' needs and technology capabilities. The CWS would deliver the CCR electronically to customers (or notify them of the availability of the electronic CCR) and include in the electronic message (or separate mailing) an option to request paper CCR delivery. The CWS would only provide a paper copy of the CCR to those customers who specifically request a paper CCR.

Again, based on the AWWA and MDH surveys, the EPA anticipates that a portion of the customer base would likely specifically choose a paper or electronic version. However, some will have no preference. The likely preference percentages from each survey are shown in Table 4:

Table 4: Electronic CCR Delivery with a Customer Option to Request a Paper CCR – AWWA and MDH Survey Preferences

Delivery Option	AWWA Percentages	MDH Percentages
Paper	52.8%	51.6%
Electronic	46.5%	48.4%

The difference is due to the percentage of those in each survey who fall under the no preference option. The no preference option for the AWWA survey is 20.1 percent, while for the MDH survey it is 2.3 percent. It was assumed that these customers would not take the extra step to request a CCR in a different format. Therefore, these percentages were included in the electronic preference category, so under this delivery approach, those with no preference would receive an electronic CCR. As a result, the preference percentages in Approach 2 appear to be more evenly split than in Approach 1.

FACTORS AND ASSUMPTIONS INFLUENCING ELECTRONIC DELIVERY TRANSITION COSTS

The cost to transition to electronic delivery and the potential savings will vary from CWS to CWS depending on the population served and other unique characteristics. An analysis was undertaken to determine what factors could potentially impact the overall cost and potential savings available to CWSs that choose to use electronic delivery. Those factors included population size, total operation & maintenance (O&M) costs, website costs, mass email delivery, email collection and electronic delivery

method. The analysis also required several assumptions to be made regarding participation and implementation of electronic delivery. This section discusses the factors and assumptions influencing electronic delivery transition costs used in this analysis.

POPULATION SIZE

The cost savings analysis estimates the cost impacts to CWSs that serve more than 10,000 persons, as the CCR Rule requires that each CWS which serves 10,000 or more persons produce and “mail or otherwise directly deliver” a copy of its CCR to customers by July 1st each year. 40 CFR § 141.155(g). CWSs serving fewer than 10,000 persons may deliver their CCR by other means with a Governor’s approval in the form of a small system waiver or state regulation. For this reason, systems serving fewer than 10,001 persons are not included in the analysis.

The December 2011 PWSS ICR lists several data points that were used for this cost savings analysis. The 2011 PWSS ICR – Appendix B, Exhibit 1 identifies three size categories for CWSs serving more than 10,000 customers:

- 10,001 to 50,000
- 50,001 to 99,999
- 100,000 and over

These size categories were used in this cost analysis.

TOTAL O&M COSTS

CWSs in each size category will likely have different O&M costs dependent on the number of paper CCRs that they are distributing. The varying costs are described in the PWSS ICR – Appendix B, Exhibit 3: Report Delivery Costs (O&M Costs). The Standard O&M Costs Per Report (includes cost of paper, photocopying or printing, folding and affixing labels) and Postage Per Report (based on bulk rates for delivery to customers) create the Total O&M Cost Per Report. Total O&M Cost Per Report was used to calculate the expected change in costs for all CWSs in each size category, as well as the impact on an average size CWS in each size category.

The electronic delivery method “Mail notification in separate mailing” could use a variety of separate mailings (e.g., postcard, bill insert, community newsletter, etc.) For this analysis, “mail notification in separate mailing” is assumed to be a postcard and cost estimates are based on \$0.28 per card based on the bulk rate provided by the US Postal Service in 2012.

WEBSITE COSTS

CWSs have multiple options for delivering CCRs electronically. According to data collected in the 2012 AWWA CCR Electronic Delivery Cost Savings Survey, 88 percent of the 227 CWSs that responded to the survey have and currently post their CCR on a website. For the 12 percent of CWSs that do not have a website, an investment would need to be made to develop a website. This assumption was used in the National Summary analysis (Attachment 2). Although maintaining a website is not necessary for some forms of electronic delivery, this analysis assumes that all CWSs will maintain a website for the CCR to be posted electronically and viewed year round. Research indicated an initial website development cost of approximately \$2,000 with an annual hosting fee of \$240 (\$20/month) for CWSs in the size categories of 10,001 to 50,000 and 50,001 to 99,999. It was assumed that all CWSs serving a population greater than 100,000 persons already have and maintain a website to meet the CCR Rule requirement for larger CWSs to post their CCRs on a publicly-accessible Internet website.

Sources⁴:

- DesignQuote.net (website development cost estimator; http://www.designquote.net/html/dq_estimate_wizard.cfm)
- dotLaunch (website development cost estimator; <http://www.dotlaunch.com/development/webestimate.shtml>)
- Review of Intuit website (website hosting service; <http://www.intuit.com/website-building-software/>)

MASS EMAIL DELIVERY COSTS

For the cost savings analysis, the EPA also estimated the range of costs that CWSs in each size category might incur if they did not already have the means to deliver a large quantity of emails to their bill-paying customers. These costs were divided into third-party vendor and in-house options.

The least expensive mass email delivery option for a CWS is to subscribe to a third party marketing email vendor. The vendor, once given a database of customer email addresses, could mail a message to each customer stating that their CCR was ready to view at the CWS's website (or the CCR could be attached to the email or embedded in the text of the email.) Third party mass email delivery costs vary from \$50 – \$250 based on the population sizes identified for this analysis and the resulting numbers of emails that must be sent based on the percentage of customers requesting electronic delivery. In the accompanying tables this option is referred to as third-party mass emailing.

⁴ These are examples of companies that provide website hosting and development services. There may be other companies that can provide similar services. EPA does not endorse any of these companies.

Sources⁵:

- Constant Contact (proprietary email marketing service; <http://www.constantcontact.com/home.jsp>)
- Mail Chimp (proprietary email marketing service; <http://mailchimp.com/>)
- One Call Now (proprietary email marketing service; <http://www.onecallnow.com/>)
- GetResponse (proprietary email marketing service; <http://www.getresponse.com/>)

The more expensive option for a CWS would be to purchase an electronic billing system and software package to be able to send mass emails, like the CCR, through the CWS's network. The purchase price for an electronic billing system and software package varies greatly, and \$100,000 was used for this analysis. In addition, electronic billing systems require annual maintenance which can be up to 1/5 of the purchase price, so a recurring maintenance fee of \$20,000 was used for this analysis. In the accompanying tables this option is referred to as in-house mass emailing.

Sources⁶:

- Aria Services (subscription billing; <http://info.ariasystems.com/BuildVsBuyGoogle.html?gclid=CN-c7pijx7ICFUJx4Aod6w8AAg>)
- Donald R. Frey & Company (proprietary billing software; <http://www.drfray.com/cubic.html>)
- TAK Technology Inc. (proprietary billing software; <http://www.quikwaters.com/net.html>)

These two options provide a range of costs that a CWS may expect to incur to email customers a CCR. These costs do not account for email collection.

EMAIL ADDRESS COLLECTION COSTS

The EPA's analysis also identified email address collection options for a CWS, especially for those that do not have a customer email database. Two approaches were investigated for collecting emails, passive and active.

“Passive” email collection involves sending out a notice with a bill that a CWS wants to collect customers' email addresses. Requests for email addresses from a smaller CWS (10,001 to 50,000 customers) are assumed to cost \$0.03/bill stuffer⁷. A returned email address would be entered into a

⁵ These are examples of companies that provide proprietary email marketing services. There may be other companies that can provide similar services. EPA does not endorse any of these companies.

⁶ These are examples of companies that provide proprietary billing software. There may be other companies that can provide similar software. EPA does not endorse any of these companies.

⁷ The PWSS ICR – Appendix B, Exhibit 3 defines Standard O&M costs for preparing a mailing per CWS depending on their size.

database, with each database entry costing approximately \$0.54/entry⁸. For medium/large CWSs (50,001 customers and over), requests for email addresses are assumed to cost \$0.007/bill stuffer⁹. A returned email address would be entered into a database, with each database entry costing approximately \$0.54/entry⁸.

“Active” email collection involves calling each customer to obtain their email address. The EPA assumes that up to 30 phone calls an hour could be completed at approximately \$1.08/per call¹⁰. Entry of each email address in a database is expected to cost approximately \$0.54/entry⁸. This analysis assumes that both the “passive” and “active” email collection methods are equally successful in terms of collecting email addresses.

ELECTRONIC DELIVERY METHOD CHOICES

CWSs have multiple options for delivering CCRs by electronic delivery but the EPA has no basis for estimating how many CWSs will choose each method or combination. In order to perform this analysis the EPA had to make several simplifying assumptions. It was assumed that each CWS would choose to use only one method of CCR electronic delivery rather than using multiple electronic methods, along with paper delivery. For the analysis, the EPA also assumed that the percentage of customers choosing electronic and paper delivery would stay the same in subsequent years.

COST SAVINGS ANALYSIS – NATIONAL SUMMARY

Electronic delivery startup costs were calculated as a lump sum for all CWSs in each size category. The first year cost analyses were conducted for Approach 1 and Approach 2 using both of the AWWA and MDH customer delivery preference percentages to provide a range of results. The National First Year Cost Difference Summary using both AWWA and MDH data is provided in Attachment 1.

The analysis identified a range of costs for the first year, which included the total costs for CWSs to make the transition to electronic delivery of a portion of their CCRs. These costs were compared to the 2011 PWSS ICR costs of mailing a paper CCR to all bill-paying customers. A cost figure that is positive would identify the amount of money a CWS may save in the first year using electronic delivery

⁸ This cost is based on entering 60 addresses per hour at \$32.38/hr loaded labor cost as defined in the PWSS ICR – Appendix B, Exhibit 5, Column D.

⁹ According to the Standard O&M Cost Per Report as defined in the PWSS ICR – Appendix B, Exhibit 3.

¹⁰ This is based on the \$32.38/hr loaded labor cost as defined in the PWSS ICR – Appendix B, Exhibit 5.

compared to mailing paper CCRs. A cost figure that is negative identifies an increased cost for CCR electronic delivery in the first year.

The savings are heavily dependent on the percentage of customers that switch to electronic delivery. It is anticipated that the higher percentage of customers who switch to electronic delivery, the higher the savings may be. Based on the AWWA and MDH preference survey results, Attachment 1 provides a range of expected first year savings or costs nationally. The range brackets the lowest and highest calculated cost differences based on email mass mailing delivery and email address collection options.

ANALYSIS FOR APPROACH 1

Cost differences for paper CCR delivery with a customer option for electronic delivery were calculated using the AWWA and MDH delivery preference percentages. In general, CWSs across all population size categories will achieve a first year cost savings if they choose to mail a notification in a separate mailing or a bill statement that the CCR is available to view via direct URL at their website. However, CWSs across all population size categories are likely to incur an increased cost the first year if they only use an email-based delivery method. The increased costs are due to investing in mass email delivery and email address collection, which are higher than, for example, simply preparing and sending a separate mailing to a physical addresses already on file. The national first year cost difference analysis using AWWA and MDH data for Approach 1 is provided in Attachments 2-1 and 2-2, respectively.

ANALYSIS FOR APPROACH 2

Cost differences for electronic CCR delivery with a customer option to request a paper CCR were calculated using the AWWA and MDH delivery preference percentages. In general, CWSs across all population size categories will achieve a first year cost savings if they choose to mail a notification on a separate mailing or on a utility bill that the CCR is available to view via direct URL at their website. However, CWSs across all population size categories are likely to incur an increased cost the first year if they only use an email-based delivery method. The increased costs are due to investing in mass email delivery and email address collection. The costs are increased whether choosing the third party emailing option and passive email collection, or an in-house emailing option with active email collection. The national first year cost difference analysis for Approach 2 using AWWA and MDH data is provided in Attachments 2-3 and 2-4, respectively.

ANALYSIS SUMMARY

In general, CWSs across all population size categories will achieve the highest first year cost savings if they choose to mail a notification on a bill that the CCR is available to view at a website. CWSs across all population size categories are likely to incur the highest increase in first year costs if they only use an email-based method.

COST SAVINGS ANALYSES – CWS SCENARIOS

To determine the likely costs for the average size CWS in each size category, a series of example CWS scenarios were developed. The scenarios chosen were as follows:

- Scenario A – CWS currently has a website where it can post its CCR, uses passive email collection and invests in third-party email delivery. Analyses of the “Scenario A” CWS in all three size categories were conducted.
- Scenario B – CWS has no website (except CWS serving 100,000 and over persons), uses active email collection and invests in an in-house electronic billing system. Analyses of the “Scenario B” CWS in all three size categories were conducted. This scenario is the most costly to implement as it requires a \$100,000 investment in an electronic billing system and individual phone calls to every customer to collect email addresses solely for the purpose of CCR delivery.
- Scenario C – CWS already has a website, an electronic billing system and software package, and has already begun collecting customer email addresses. “Scenario C” analysis was conducted for an average size CWS in the 100,000 and over size category only. This scenario is the least costly as many upfront investments necessary for electronic delivery are already complete.
- Scenario D – CWS has no website (except CWS serving 100,000 and over persons), uses active email collection and third-party email delivery. Analyses of the “Scenario D” CWS in all three size categories were conducted.

The analyses completed for the CWS size categories in each scenario include the following results:

- **Breakeven Point:** defined as the number of years it takes to recoup the initial investment in CCR electronic delivery. The Breakeven Point Summaries for Approach 1 and Approach 2 using both AWWA and MDH data are provided in Attachment 3. A range is provided to show the breakeven point that a CWS should expect depending on the electronic delivery method chosen and the percentage of its customers participating in electronic delivery.
- **First Year Cost Difference:** defined as the difference in the first year total costs of CWSs to transition to the electronic delivery of a portion of their CCRs. A cost figure that is positive identifies a cost savings in the first year the program is implemented. A cost figure that is negative identifies an increased cost for that delivery method (as compared to only paper CCR delivery) in the first year. A CWS’s first year cost savings difference will be dependent on the amount of investment the CWS is required to make to implement an electronic delivery method. The Cost Difference Summaries for Approach 1 and Approach 2 using both AWWA and MDH data are provided in Attachment 4. A range is provided to show the first year cost difference that a CWS should expect depending on the electronic delivery method chosen and the percentage of its customers switch to electronic delivery.

The savings are heavily dependent on the percentage of customers participating in electronic delivery. It is anticipated that the higher percentage of customer electronic delivery participation, the greater the savings will be. A range of expected first year savings or costs was found by contrasting the customer delivery preferences based on the AWWA and MDH survey presentations.

CWS SCENARIO ANALYSES FOR APPROACH 1

Cost differences for paper CCR delivery with a customer option for electronic delivery were calculated using the AWWA and MDH delivery preference percentages across the four CWS scenarios and are presented in Attachment 5. The tables summarizing the breakeven points can be found in Attachment 3.

- Scenario A: The average size CWS across all population size categories will achieve a first year cost savings if it chooses to mail a notification on a utility bill or a separate mailing that the CCR is available to view via a direct URL on a website. However, the average size CWS across all population size categories is likely to incur an increased cost the first year if it emails a notification that the CCR is ready to view via a direct URL, email the CCR as a PDF attachment or emails the CCR as an embedded image. The increased costs are due to investing in third-party mass email delivery and passive email collection. In general, the average size CWS across all population size categories could expect to breakeven in one to three years of delivering its CCR by an electronic delivery method. For specific analyses using AWWA and MDH percentages see Attachments 5-1 and 5-2, respectively. A summary of the breakeven points for Scenario A can be found in Attachment 3-1.
- Scenario B: The average size CWS in the 10,001 – 50,000 population size category will not achieve a first year cost savings due to the cost of investing in a website, purchasing an in-house mass email delivery system and active email collection. This CWS will have a breakeven point of three to five years if it chooses to mail a notification on a utility bill that the CCR is ready to view via direct URL on a website. The average size CWS in the 50,001 – 99,999 population size category will only achieve a first year cost savings if it mails a notification statement on a utility bill that the CCR is ready to view via direct URL on a website. This CWS will likely have a breakeven point of two to five years if it chooses to mail a notification on a utility bill or a separate mailing that the CCR is ready to view via a direct URL. The average size CWS in the 100,000 and over population size category will likely only achieve a first year cost savings if it mails a notification statement on a utility bill or a separate mailing that the CCR is ready to view via direct URL on a website. This CWS will likely have a breakeven point of one year. For all three population size categories, it may not be possible to recoup the cost of investing in a website, purchasing an in-house mass email delivery system and active email collection for the sole purpose of CCR delivery. For specific analyses using AWWA and MDH percentages see Attachments 5-3 and 5-4, respectively. A summary of the breakeven points for Scenario B can be found in Attachment 3-2.

- Scenario C: This scenario was only modeled on the average size CWS serving 100,000 and over customers. The average CWS will likely achieve first year savings across all CCR electronic delivery methods since it already has the technological infrastructure to support electronic delivery. The average CWS will likely breakeven in the first year across all CCR electronic delivery methods. For the specific analysis using AWWA and MDH percentages see Attachments 5-5 and 5-6, respectively. A summary of the breakeven points for Scenario C can be found in Attachment 3-3.
- Scenario D: The average size CWS in the 10,001 – 50,000 population size category will not achieve a first year cost savings with electronic delivery. This CWS will likely have a breakeven point of three to 13 years (where possible to recoup) across all electronic delivery methods due to the costs of investing in a website, using a third-party for mass email delivery and active email collection. CWSs in the 50,001 – 99,999 population size category will only achieve a first year cost savings if it mails a notification statement on a utility bill that the CCR is ready to view via direct URL on a website. These CWSs will likely have breakeven points of two to 15 years across all electronic delivery methods. CWSs in the 100,000 and over population size category will likely only achieve a first year cost savings if it mails a notification statement on a utility bill or a separate mailing that the CCR is ready to view via direct URL on a website. These CWSs will likely have breakeven points of one to 12 years based on the costs of third-party mass emailing and active email collection. For specific analyses using AWWA and MDH percentages see Attachments 5-7 and 5-8, respectively. A summary of the breakeven points for Scenario D can be found in Attachment 3-4.

CWS SCENARIO ANALYSES FOR APPROACH 2

Cost differences for electronic CCR delivery with a customer option to request a paper CCR were calculated using the AWWA and MDH delivery preference percentages across the four scenarios and are found in Attachment 6. The tables summarizing the breakeven points can be found in Attachment 3. This analysis was not able to account for costs incurred for any advance notice a CWS should provide prior their CCR electronic delivery.

- Scenario A: In general, the average size CWS across all population size categories will achieve a first year cost savings if it chooses to mail a notification on a utility bill or a separate mailing that the CCR is available to view via direct URL on a website. However, the average size CWS across all population size categories is likely to incur an increased costs the first year if it emails a notification, PDF or embedded the CCR in the body of the email. The increased costs are due to investing in third-party mass email delivery and passive email collection. In general, the average size CWS across all population size categories could expect to breakeven in one to three years of delivering its CCR by an electronic delivery method. For specific analyses using

AWWA and MDH percentages see Attachments 6-1 and 6-2, respectively. A summary of the breakeven points for Scenario A can be found in Attachment 3-1.

- Scenario B: The average size CWS in the 10,001 – 50,000 population size category will not achieve a first year cost savings due to the cost of investing in a website, purchasing an in-house mass email delivery system and active email collection. This CWS will have a breakeven point of three to 11 years if it chooses to mail a notification in a utility bill or on a separate mailing that the CCR is ready to view via direct URL on a website. The average size CWS in the 50,001 – 99,999 population size category will only achieve a first year cost savings if it mails a notification statement on a utility bill that the CCR is ready to view via direct URL on a website. This CWS will likely have breakeven point of two to three years. The average size CWS in the 100,000 and over population size category will likely only achieve a first year cost savings if it mails a notification statement on a utility bill or a separate mailing that the CCR is ready to view via direct URL on a website. This CWS will likely have a breakeven point of one year. For all three population size categories it may not be possible to recoup the cost of investing in a website, purchasing an in-house mass email delivery system and active email collection for the sole purpose of CCR delivery. For specific analyses using AWWA and MDH percentages see Attachments 6-3 and 6-4, respectively. A summary of the breakeven points for Scenario B can be found in Attachment 3-2.
- Scenario C: This scenario was only modeled on the average size CWS serving 100,000 and over persons. The average CWS will likely achieve first year savings across all CCR electronic delivery methods due to the established technological infrastructure to support electronic delivery. The average CWS will likely breakeven in the first year. For the specific analysis using AWWA and MDH percentages see Attachments 6-5 and 6-6, respectively. A summary of the breakeven points for Scenario C can be found in Attachment 3-3.
- Scenario D: The average size CWS in the 10,001 – 50,000 population size category will not achieve a first year cost savings with electronic delivery. This CWS will likely have a breakeven point of three to 11 years across all electronic delivery methods due to the costs of investing in a website, third-party mass email delivery and active email collection. The average size CWS in the 50,001 – 99,999 population size category will only achieve a first year cost savings if it mails a notification statement on a utility bill that the CCR is ready to view via direct URL on a website. This CWS will likely breakeven in two to nine years across all electronic delivery methods. The average size CWS in the 100,000 and over population size category will likely only achieve a first year cost savings if it mails a notification statement on a utility bill or a separate mailing that the CCR is ready to view via direct URL on a website. This CWS will likely breakeven in one to eight years based on the costs of third-party mass emailing and active email collection. For specific analyses using AWWA and MDH percentages see Attachments 6-7

and 6-8, respectively. A summary of the breakeven points for Scenario D can be found in Attachment 3-4.

COST SAVINGS DIFFERENCE SUMMARY

A range of cost savings differences for the first year was calculated for all four CWS scenarios, two approaches and four electronic delivery methods utilizing AWWA and MDH percentages and is found in Attachment 4.

- Scenario A: In general, the average size CWS across all population size categories will achieve the greatest first year cost savings if it mails a notification on a utility bill that the CCR is available to view via direct URL on a website. The first year cost savings range from \$875 to \$18,727 depending on CWS population size. The average size CWS across all population size categories is likely to incur the highest increase in first year costs (e.g., up to \$6,073 of costs were found for the largest CWS size category) if it emails a notification. This trend is seen in both Approaches 1 and 2. A summary of the first year cost difference for Scenario A can be found in Attachment 4-1.
- Scenario B: In general, the average size CWS in the 10,001 – 50,000 population size category will not achieve a first year cost savings utilizing electronic delivery. The average size CWS in the 50,001 – 99,999 population size category will only achieve a first year cost savings (\$257 - \$2,221) if it mails a notification statement on a utility bill that the CCR is ready to view via direct URL on a website. The average size CWS in the 100,000 and over population size category will likely see the greatest cost savings (\$10,485 - \$18,727) in the first year if it mails a notification statement on a utility bill but will also see modest savings (\$3,521 - \$5,997) when sending a separate mailing that the CCR is ready to view via direct URL on a website. For those CWSs achieving a cost savings, the amount is greater with Approach 2. No savings may ever be achieved (i.e., breakeven point achieved) across any CWS size category utilizing an email method if the CWS purchases an electronic billing system and only uses it for CCR delivery. A summary of the first year cost difference for Scenario B can be found in Attachment 4-2.
- Scenario C: The average CWS serving 100,000 or more persons will likely achieve first year savings across all CCR electronic delivery methods. Greater savings up to \$18,727 may be achieved with Approach 2 but the savings are generally the same across both Approaches. A summary of the first year cost difference for Scenario C can be found in Attachment 4-3.
- Scenario D: In general, the average size CWS in the 10,001 – 50,000 population size category will not achieve a first year cost savings utilizing electronic delivery. The average size CWS in the 50,001 – 99,999 population size category will only achieve a first year cost savings if it mails

a notification statement on a utility bill that the CCR is ready to view via direct URL on a website. For the average size CWS in the two smaller population size categories, the most expensive delivery method would be emailing a direct URL as the CWS would incur the extra costs associated with emailing and creating/maintaining a website. The average size CWS in the 100,000 and over population size category will achieve the greatest first year cost savings between \$10,485 and \$18,727 if it mails a notification statement on a utility bill that the CCR is ready to view via direct URL on a website. A summary of the first year cost difference for Scenario D can be found in Attachment 4-4.

CONCLUSIONS

CWSs transitioning to electronic delivery for a portion of their CCRs may incur costs such as:

- Producing and delivering a separate mailing
- Creating a website
- Hosting a website
- Collecting email addresses from customers
- Utilizing a third-party vendor to deliver email notifications
- Investing in an electronic billing system and software package

For CWSs that send a portion of their CCRs by an electronic delivery method, there are savings associated with a reduction in printing the CCR and mailing the CCR separately. However, those savings may or may not be enough to outweigh the costs associated with switching to an electronic delivery method. Therefore, first year savings are not expected for every CWS that switches to an electronic delivery method. The less cost there is to transition to an electronic delivery method, the more likely a CWS is to achieve first year savings.

CCR delivery costs are heavily dependent on the percentage of customers who participate in electronic delivery, as is seen in Approach 1 with the difference between the AWWA and MDH data. In all of these analyses a large difference in customer delivery preference is seen in the AWWA data in Approach 1 from the rest of the data in Approaches 1 and 2. This difference is attributed to the 20.1 percent of customers who did not specify a delivery preference in the AWWA survey. In Approach 1, this results in the AWWA data representing more customers receiving paper CCRs than the MDH data. The MDH data reported 2.3 percent of customers who did not specify a CCR delivery method preference and those cost estimates in Approach 1 are very similar to those in Approach 2. It is anticipated that the higher percentage of customers who switch to electronic delivery, the greater the anticipated savings will be.

When delivering a CCR electronically in subsequent years, costs are likely to be lower than in the first year. Lower costs are attributed to the majority of the initial investment being a one-time cost such as:

- Creating a website
- Investing in an e-billing system and software package
- Collecting customer email addresses

There are likely to be ongoing maintenance costs associated with some of these initial investments, but those are likely to be lower than the initial investment itself. Therefore, many CWSs will realize a savings in subsequent years by using an electronic delivery method for the CCR.

To determine how long it will take to recoup the initial investment and achieve a net savings by utilizing an electronic delivery method, a breakeven point was calculated. Breakeven points will vary. Again, this is due to the cost of initial investment and estimated savings expected in the first year and then in subsequent years. It is expected that high cost items, such as investing in an electronic billing system and software package, will be used for purposes other than delivering CCRs (and therefore realize savings in other aspects of CWS operation), but it is unlikely that the costs associated with purchasing such a system will be offset solely by savings achieved through CCR electronic delivery.

Electronic delivery of the CCR can be a benefit for most community water systems but it is important to examine all the factors, such as startup costs, customer delivery preference, customer technology capabilities, etc., before investing in electronic delivery.

Attachment 1: National First Year Cost Difference Summary

National First Year Cost Difference Summary [1]					
CWS Size Category	Electronic Delivery Method	First Year Cost Difference - Approach 1		First Year Cost Difference - Approach 2	
		AWWA Data	MDH Data	AWWA Data	MDH Data
10,001 to 50,000	Mail Notification on Separate Mailing	\$23,475	\$562,894	\$648,626	\$634,429
	Mail Notification Statement on Bill	\$1,966,525	\$3,955,872	\$4,071,044	\$4,196,687
	Email URL for CCR [2]	-\$2,290,315 to -\$351,041,645	-\$2,825,089 to -\$351,576,419	-\$2,761,168 to -\$351,512,498	-\$2,878,968 to -\$351,630,298
	Email CCR as PDF [2]	-\$1,419,403 to -\$350,170,733	-\$1,954,177 to -\$350,705,507	-\$1,890,256 to -\$350,641,586	-\$2,008,056 to -\$350,759,386
	Email CCR as embedded image [2]	-\$1,419,403 to -\$350,170,733	-\$1,954,177 to -\$350,705,507	-\$1,890,256 to -\$350,641,586	-\$2,008,056 to -\$350,759,386
50,001 to 99,999	Mail Notification on Separate Mailing	\$308,460	\$586,204	\$627,455	\$622,705
	Mail Notification Statement on Bill	\$1,205,825	\$2,153,193	\$2,208,041	\$2,267,874
	Email URL for CCR [2]	-\$618,559 to -\$67,364,726	-\$930,334 to -\$67,676,500	-\$901,052 to -\$67,647,219	-\$962,659 to -\$67,708,826
	Email CCR as PDF [2]	-\$473,138 to -\$67,219,305	-\$784,913 to -\$67,531,079	-\$755,631 to -\$67,501,798	-\$817,238 to -\$67,563,405
	Email CCR as embedded image [2]	-\$473,138 to -\$67,219,305	-\$784,913 to -\$67,531,079	-\$755,631 to -\$67,501,798	-\$817,238 to -\$67,563,405
100,000 and over	Mail Notification on Separate Mailing	\$1,465,218	\$2,361,829	\$2,494,996	\$2,479,666
	Mail Notification Statement on Bill	\$4,362,087	\$7,420,377	\$7,597,436	\$7,790,592
	Email URL for CCR [2]	-\$1,415,137 to -\$83,951,692	-\$2,421,606 to -\$84,958,161	-\$2,327,080 to -\$84,863,635	-\$2,525,957 to -\$85,062,511
	Email CCR as PDF [2]	-\$1,415,137 to -\$83,951,692	-\$2,421,606 to -\$84,958,161	-\$2,327,080 to -\$84,863,635	-\$2,525,957 to -\$85,062,511
	Email CCR as embedded image [2]	-\$1,415,137 to -\$83,951,692	-\$2,421,606 to -\$84,958,161	-\$2,327,080 to -\$84,863,635	-\$2,525,957 to -\$85,062,511

Notes:

[1] A positive value indicates a cost savings, while a negative value indicates an increased cost. To see national first year cost difference calculations, see Attachments 2-1 to 2-4.

[2] The ranges are based on cost differences for third party/passive electronic delivery compared to in-house/active electronic delivery.

Attachment 2-1: National Summary - Approach 1, AWWA Data

A	B	C	D	E=C*D	F	G	H	I=C*D*G	J	K	L=B*J*K	M	N=B*M	O	P=B*O	Q	R	S	T	U=(C*Q)+(C*G)*(R/T)	V=(C*(R/S))+(C*G)*(R/T)	W=I+L+N+U	X=I+L+P+V	Y=E-W	Z=E-X						
Community Water System (CWS) Size Category	Number of CWSs	Number of Customers (Service Connections)	Total O&M Cost Per Report	CCR Paper Delivery Cost	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS Size Category	Percent CWSs Without a Website [1]	Website Cost [2]	Website Cost per CWS Size Category	Third Party Mass Email Cost [3]	Third Party Mass Email Technology Cost per CWS Size Category	In-House Electronic Billing System Cost [4]	In-House Electronic Billing System Cost per CWS Size Category	Standard O&M Cost	Labor Rate	Telephone Calls per Hour	Database Entries per Hour	Email Collection Cost (passive)	Email Collection Cost (active)	Total First Year Cost (third party, passive) [5]	Total First Year Cost (in-house, active) [5]	Cost Difference (third party, passive)	Cost Difference (in-house, active)						
10,001 to 50,000	3,240	23,742,055	\$0.441	\$10,470,247	Paper	72.9%	Mail Paper CCR	\$7,632,810																							
					Electronic	26.4%	Mail Notification on Separate Mailing [6]	\$1,943,050	0.12	\$2,240	\$870,912															\$10,446,772		\$23,475			
							Mail Notification Statement on Bill [7]	As part of normal bill	0.12	\$2,240	\$870,912																\$8,503,722		\$1,966,525		
							Email URL for CCR		0.12	\$2,240	\$870,912	\$50	\$162,000	\$100,000	\$324,000,000	\$0.03	\$32.38	30	60	\$4,094,840	\$29,008,170	\$12,760,562	\$361,511,892	-\$2,290,315	-\$351,041,645						
							Email CCR as PDF					\$50	\$162,000	\$100,000	\$324,000,000	\$0.03	\$32.38	30	60	\$4,094,840	\$29,008,170	\$11,889,650	\$360,640,980	-\$1,419,403	-\$350,170,733						
											\$50	\$162,000	\$100,000	\$324,000,000	\$0.03	\$32.38	30	60	\$4,094,840	\$29,008,170	\$11,889,650	\$360,640,980	-\$1,419,403	-\$350,170,733							
50,001 to 99,999	541	11,843,581	\$0.421	\$4,986,148	Paper	72.9%	Mail Paper CCR	\$3,634,902																							
					Electronic	26.4%	Mail Notification on Separate Mailing [6]	\$897,365	0.12	\$2,240	\$145,421																\$4,677,688		\$308,460		
							Mail Notification Statement on Bill [7]	As part of normal bill	0.12	\$2,240	\$145,421																\$3,780,323		\$1,205,825		
							Email URL for CCR		0.12	\$2,240	\$145,421	\$100	\$54,100	\$100,000	\$54,100,000	\$0.007	\$32.38	30	60	\$1,770,284	\$14,470,551	\$5,604,707	\$72,350,874	-\$618,559	-\$67,364,726						
							Email CCR as PDF					\$100	\$54,100	\$100,000	\$54,100,000	\$0.007	\$32.38	30	60	\$1,770,284	\$14,470,551	\$5,459,286	\$72,205,453	-\$473,138	-\$67,219,305						
											\$100	\$54,100	\$100,000	\$54,100,000	\$0.007	\$32.38	30	60	\$1,770,284	\$14,470,551	\$5,459,286	\$72,205,453	-\$473,138	-\$67,219,305							
100,000 and over	416	38,233,405	\$0.421	\$16,096,264	Paper	72.9%	Mail Paper CCR	\$11,734,177																							
					Electronic	26.4%	Mail Notification on Separate Mailing [6]	\$2,896,869		\$0																	\$14,631,046		\$1,465,218		
							Mail Notification Statement on Bill [7]	As part of normal bill		\$0																		\$11,734,177		\$4,362,087	
							Email URL for CCR			\$0			\$150	\$62,400	\$100,000	\$41,600,000	\$0.007	\$32.38	30	60	\$5,714,824	\$46,713,779	\$17,511,401	\$100,047,956	-\$1,415,137	-\$83,951,692					
							Email CCR as PDF						\$150	\$62,400	\$100,000	\$41,600,000	\$0.007	\$32.38	30	60	\$5,714,824	\$46,713,779	\$17,511,401	\$100,047,956	-\$1,415,137	-\$83,951,692					
											\$150	\$62,400	\$100,000	\$41,600,000	\$0.007	\$32.38	30	60	\$5,714,824	\$46,713,779	\$17,511,401	\$100,047,956	-\$1,415,137	-\$83,951,692							

Notes:

[1] CWSs in the 100,000 and over Size Category are assumed to already have a website.

[2] Website cost is assumed to include a development cost and an annual hosting cost from a third party provider.

[3] Mass emailing cost is based on the average cost for a monthly subscription from several third party providers.

[4] Electronic Billing System Cost is assumed to be the purchase of a \$100,000 electronic billing system.

[5] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The total cost to Mail Notification on Separate Mailing should include the cost to mail the postcard.

[6] Separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on the bulk rate provided by the US Postal Service.

[7] No cost assumed if CWS adds notification to normal bill.

Assumptions:

Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.

Number of CWSs: PWSS ICR 2011, Appendix B, Exhibit 2.

Number of Customers (Service Connections): PWSS ICR 2011, Appendix B, Exhibit 2.

Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.

% Customers Receiving CCRs by This Method: 2011 AWWA Consumer Survey.

Percent CWSs Without a Website: 2012 AWWA CCR Cost Savings Survey. It is assumed that all CWSs 100,000 and over already have a website.

Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. It is assumed that this will also be the cost to passively collect a customer's email address.

Labor Rate: PWSS ICR 2011, Appendix B, Exhibit 5.

Telephone Calls per Hour: it assumed that each phone call will last two minutes.

Database Entries per Hour: it is assumed that each database entry takes one minute.

Email Collection Cost (active): it is assumed that CWSs have telephone contact information for all customers.

Total First Year Cost (third party, passive): the total cost of mailing a paper copy of the CCR to a portion of the customers and the cost of electronically delivering the rest. This would include costs for website development, third party email delivery and passive email collection. The costs for Mail Notification on Separate Mailing or on a Bill are included in this column.

Total First Year Cost (in-house, active): the total cost of mailing a paper copy of the CCR to a portion of the customers and the cost of electronically delivering the rest. This would include costs for website development, the purchase of an in-house electronic billing system and active email collection.

Cost Difference (third party, passive): the cost difference between paper CCR delivery and mailing a paper copy of the CCR to a portion of the customers and the cost of electronically delivering the rest. The cost difference for Mail Notification on Separate Mailing or on a Bill are included in this column.

Cost Difference (in-house, active): the cost difference between paper CCR delivery and mailing a paper copy of the CCR to a portion of the customers and the cost of electronically delivering the rest.

Attachment 2-2: National Summary - Approach 1, MDH Data

A	B	C	D	E=C*D	F	G	H	I=C*D*G	J	K	L=B*J*K	M	N=B*M	O	P=B*O	Q	R	S	T	U=(C*Q)+(C*G)*(R/T)	V=(C*(R/S))+(C*G)*(R/T)	W=I+L+N+U	X=I+L+P+V	Y=E-W	Z=E-X					
Community Water System (CWS) Size Category	Number of CWSs	Number of Customers (Service Connections)	Total O&M Cost Per Report	CCR Paper Delivery Cost	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS Size Category	Percent CWSs Without a Website [1]	Website Cost [2]	Website Cost per CWS Size Category	Third Party Mass Email Cost [3]	Third Party Mass Email Technology Cost per CWS Size Category	In-House Electronic Billing System Cost [4]	In-House Electronic Billing System Cost per CWS Size Category	Standard O&M Cost	Labor Rate	Telephone Calls per Hour	Database Entries per Hour	Email Collection Cost (passive)	Email Collection Cost (active)	Total First Year Cost (third party, passive) [5]	Total First Year Cost (in-house, active) [5]	Cost Difference (third party, passive)	Cost Difference (in-house, active)					
10,001 to 50,000	3,240	23,742,055	\$0.441	\$10,470,247	Paper	53.9%	Mail Paper CCR	\$5,643,463																						
					Electronic	46.1%	Mail Notification on Separate Mailing [6]	\$3,392,978	0.12	\$2,240	\$870,912															\$9,907,353		\$562,894		
							Mail Notification Statement on Bill [7]	As part of normal bill	0.12	\$2,240	\$870,912																\$6,514,375		\$3,955,872	
							Email URL for CCR		0.12	\$2,240	\$870,912	\$50	\$162,000	\$100,000	\$324,000,000	\$0.03	\$32.38	30	60	\$6,618,961	\$31,532,291	\$13,295,336	\$362,046,666	-\$2,825,089	-\$351,576,419					
							Email CCR as PDF					\$50	\$162,000	\$100,000	\$324,000,000	\$0.03	\$32.38	30	60	\$6,618,961	\$31,532,291	\$12,424,424	\$361,175,754	-\$1,954,177	-\$350,705,507					
											\$50	\$162,000	\$100,000	\$324,000,000	\$0.03	\$32.38	30	60	\$6,618,961	\$31,532,291	\$12,424,424	\$361,175,754	-\$1,954,177	-\$350,705,507						
50,001 to 99,999	541	11,843,581	\$0.421	\$4,986,148	Paper	53.9%	Mail Paper CCR	\$2,687,534																						
					Electronic	46.1%	Mail Notification on Separate Mailing [6]	\$1,566,989	0.12	\$2,240	\$145,421															\$4,399,944		\$586,204		
							Mail Notification Statement on Bill [7]	As part of normal bill	0.12	\$2,240	\$145,421																\$2,832,955		\$2,153,193	
							Email URL for CCR		0.12	\$2,240	\$145,421	\$100	\$54,100	\$100,000	\$54,100,000	\$0.007	\$32.38	30	60	\$3,029,427	\$15,729,693	\$5,916,482	\$72,662,648	-\$930,334	-\$67,676,500					
							Email CCR as PDF					\$100	\$54,100	\$100,000	\$54,100,000	\$0.007	\$32.38	30	60	\$3,029,427	\$15,729,693	\$5,771,061	\$72,517,227	-\$784,913	-\$67,531,079					
											\$100	\$54,100	\$100,000	\$54,100,000	\$0.007	\$32.38	30	60	\$3,029,427	\$15,729,693	\$5,771,061	\$72,517,227	-\$784,913	-\$67,531,079						
100,000 and over	416	38,233,405	\$0.421	\$16,096,264	Paper	53.9%	Mail Paper CCR	\$8,675,887																						
					Electronic	46.1%	Mail Notification on Separate Mailing [6]	\$5,058,548		\$0																\$13,734,435		\$2,361,829		
							Mail Notification Statement on Bill [7]	As part of normal bill		\$0																	\$8,675,887		\$7,420,377	
							Email URL for CCR			\$0			\$150	\$62,400	\$100,000	\$41,600,000	\$0.007	\$32.38	30	60	\$9,779,583	\$50,778,538	\$18,517,870	\$101,054,425	-\$2,421,606	-\$84,958,161				
							Email CCR as PDF					\$150	\$62,400	\$100,000	\$41,600,000	\$0.007	\$32.38	30	60	\$9,779,583	\$50,778,538	\$18,517,870	\$101,054,425	-\$2,421,606	-\$84,958,161					
											\$150	\$62,400	\$100,000	\$41,600,000	\$0.007	\$32.38	30	60	\$9,779,583	\$50,778,538	\$18,517,870	\$101,054,425	-\$2,421,606	-\$84,958,161						

Notes:

[1] CWSs in the 100,000 and over Size Category are assumed to already have a website.

[2] Website cost is assumed to include a development cost and an annual hosting cost from a third party provider.

[3] Mass emailing cost is based on the average cost for a monthly subscription from several third party providers.

[4] Electronic Billing System Cost is assumed to be the purchase of a \$100,000 electronic billing system.

[5] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The total cost to Mail Notification on Separate Mailing should include the cost to mail the postcard.

[6] Separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on the bulk rate provided by the US Postal Service.

[7] No cost assumed if CWS adds notification to normal bill.

Assumptions:

Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.

Number of CWSs: PWSS ICR 2011, Appendix B, Exhibit 2.

Number of Customers (Service Connections): PWSS ICR 2011, Appendix B, Exhibit 2.

Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.

% Customers Receiving CCRs by This Method: 2012 MDH Survey.

Percent CWSs Without a Website: 2012 AWWA CCR Cost Savings Survey. It is assumed that all CWSs 100,000 and over already have a website.

Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. It is assumed that this will also be the cost to passively collect a customer's email address.

Labor Rate: PWSS ICR 2011, Appendix B, Exhibit 5.

Telephone Calls per Hour: it assumed that each phone call will last two minutes.

Database Entries per Hour: it is assumed that each database entry takes one minute.

Email Collection Cost (active): it is assumed that CWSs have telephone contact information for all customers.

Total First Year Cost (third party, passive): the total cost of mailing a paper copy of the CCR to a portion of the customers and the cost of electronically delivering the rest. This would include costs for website development, third party email delivery and passive email collection. The costs for Mail Notification on Separate Mailing or on a Bill are included in this column.

Total First Year Cost (in-house, active): the total cost of mailing a paper copy of the CCR to a portion of the customers and the cost of electronically delivering the rest. This would include costs for website development, the purchase of an in-house electronic billing system and active email collection.

Cost Difference (third party, passive): the cost difference between paper CCR delivery and mailing a paper copy of the CCR to a portion of the customers and the cost of electronically delivering the rest. The cost difference for Mail Notification on Separate Mailing or on a Bill are included in this column.

Cost Difference (in-house, active): the cost difference between paper CCR delivery and mailing a paper copy of the CCR to a portion of the customers and the cost of electronically delivering the rest.

Attachment 2-3: National Summary - Approach 2, AWWA Data

A	B	C	D	E=C*D	F	G	H	I=C*D*G	J	K	L=B*J*K	M	N=B*M	O	P=B*O	Q	R	S	T	U=(C*Q)+(C*G)*(R/T)	V=(C*(R*S))+(C*G)*(R/T)	W=I+L+N+U	X=I+L+P+V	Y=E-W	Z=E-X						
Community Water System (CWS) Size Category	Number of CWSs	Number of Customers (Service Connections)	Total O&M Cost Per Report	CCR Paper Delivery Cost	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS Size Category	Percent CWSs Without a Website [1]	Website Cost [2]	Website Cost per CWS Size Category	Third Party Mass Email Cost [3]	Third Party Mass Email Technology Cost per CWS Size Category	In-House Electronic Billing System Cost [4]	In-House Electronic Billing System Cost per CWS Size Category	Standard O&M Cost	Labor Rate	Telephone Calls per Hour	Database Entries per Hour	Email Collection Cost (passive)	Email Collection Cost (active)	Total First Year Cost (third party, passive) [5]	Total First Year Cost (in-house, active) [5]	Cost Difference (third party, passive)	Cost Difference (in-house, active)						
10,001 to 50,000	3,240	23,742,055	\$0.441	\$10,470,247	Paper	52.8%	Mail Paper CCR	\$5,528,291																							
					Electronic	46.5%	Mail Notification on Separate Mailing [6]		\$3,422,418	0.12	\$2,240	\$870,912														\$9,821,621		\$648,626			
							Mail Notification Statement on Bill [7]		As part of normal bill	0.12	\$2,240	\$870,912															\$6,399,203		\$4,071,044		
							Email URL for CCR			0.12	\$2,240	\$870,912	\$50	\$162,000	\$100,000	\$324,000,000	\$0.03	\$32.38	30	60	\$6,670,212	\$31,583,542	\$13,231,415	\$361,982,745	-\$2,761,168	-\$351,512,498					
							Email CCR as PDF					\$50	\$162,000	\$100,000	\$324,000,000	\$0.03	\$32.38	30	60	\$6,670,212	\$31,583,542	\$12,360,503	\$361,111,833	-\$1,890,256	-\$350,641,586						
											\$50	\$162,000	\$100,000	\$324,000,000	\$0.03	\$32.38	30	60	\$6,670,212	\$31,583,542	\$12,360,503	\$361,111,833	-\$1,890,256	-\$350,641,586							
50,001 to 99,999	541	11,843,581	\$0.421	\$4,986,148	Paper	52.8%	Mail Paper CCR	\$2,632,686																							
					Electronic	46.5%	Mail Notification on Separate Mailing [6]		\$1,580,586	0.12	\$2,240	\$145,421															\$4,358,693		\$627,455		
							Mail Notification Statement on Bill [7]		As part of normal bill	0.12	\$2,240	\$145,421															\$2,778,107		\$2,208,041		
							Email URL for CCR			0.12	\$2,240	\$145,421	\$100	\$54,100	\$100,000	\$54,100,000	\$0.007	\$32.38	30	60	\$3,054,993	\$15,755,260	\$5,887,200	\$72,633,367	-\$901,052	-\$67,647,219					
							Email CCR as PDF					\$100	\$54,100	\$100,000	\$54,100,000	\$0.007	\$32.38	30	60	\$3,054,993	\$15,755,260	\$5,741,779	\$72,487,946	-\$755,631	-\$67,501,798						
											\$100	\$54,100	\$100,000	\$54,100,000	\$0.007	\$32.38	30	60	\$3,054,993	\$15,755,260	\$5,741,779	\$72,487,946	-\$755,631	-\$67,501,798							
100,000 and over	416	38,233,405	\$0.421	\$16,096,264	Paper	52.8%	Mail Paper CCR	\$8,498,828																							
					Electronic	46.5%	Mail Notification on Separate Mailing [6]		\$5,102,440		\$0																\$13,601,268		\$2,494,996		
							Mail Notification Statement on Bill [7]		As part of normal bill		\$0																	\$8,498,828		\$7,597,436	
							Email URL for CCR				\$0			\$150	\$62,400	\$100,000	\$41,600,000	\$0.007	\$32.38	30	60	\$9,862,116	\$50,861,071	\$18,423,344	\$100,959,899	-\$2,327,080	-\$84,863,635				
							Email CCR as PDF					\$150	\$62,400	\$100,000	\$41,600,000	\$0.007	\$32.38	30	60	\$9,862,116	\$50,861,071	\$18,423,344	\$100,959,899	-\$2,327,080	-\$84,863,635						
											\$150	\$62,400	\$100,000	\$41,600,000	\$0.007	\$32.38	30	60	\$9,862,116	\$50,861,071	\$18,423,344	\$100,959,899	-\$2,327,080	-\$84,863,635							

Notes:

[1] CWSs in the 100,000 and over Size Category are assumed to already have a website.

[2] Website cost is assumed to include a development cost and an annual hosting cost from a third party provider.

[3] Mass emailing cost is based on the average cost for a monthly subscription from several third party providers.

[4] Electronic Billing System Cost is assumed to be the purchase of a \$100,000 electronic billing system.

[5] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The total cost to Mail Notification on Separate Mailing should include the cost to mail the postcard.

[6] Separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on the bulk rate provided by the US Postal Service.

[7] No cost assumed if CWS adds notification to normal bill.

Assumptions:

Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.

Number of CWSs: PWSS ICR 2011, Appendix B, Exhibit 2.

Number of Customers (Service Connections): PWSS ICR 2011, Appendix B, Exhibit 2.

Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.

% of Customers Receiving CCRs by this Method: 2011 AWWA Survey.

Percent CWSs Without a Website: 2012 AWWA CCR Cost Savings Survey. It is assumed that all CWSs 100,000 and over already have a website.

Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. It is assumed that this will also be the cost to passively collect a customer's email address.

Labor Rate: PWSS ICR 2011, Appendix B, Exhibit 5.

Telephone Calls per Hour: it assumed that each phone call will last two minutes.

Database Entries per Hour: it is assumed that each database entry takes one minute.

Email Collection Cost (active): it is assumed that CWSs have telephone contact information for all customers.

Total First Year Cost (third party, passive): the total cost of mailing a paper copy of the CCR to a portion of the customers and the cost of electronically delivering the rest. This would include costs for website development, third party email delivery and passive email collection. The costs for Mail Notification on Separate Mailing or on a Bill are included in this column.

Total First Year Cost (in-house, active): the total cost of mailing a paper copy of the CCR to a portion of the customers and the cost of electronically delivering the rest. This would include costs for website development, the purchase of an in-house electronic billing system and active email collection.

Cost Difference (third party, passive): the cost difference between paper CCR delivery and mailing a paper copy of the CCR to a portion of the customers and the cost of electronically delivering the rest. The cost difference for Mail Notification on Separate Mailing or on a Bill are included in this column.

Cost Difference (in-house, active): the cost difference between paper CCR delivery and mailing a paper copy of the CCR to a portion of the customers and the cost of electronically delivering the rest.

Attachment 2-4: National Summary - Approach 2, MDH Data

A	B	C	D	E=C*D	F	G	H	I=C*D*G	J	K	L=B*J*K	M	N=B*M	O	P=B*O	Q	R	S	T	U=(C*Q)+(C*G)*(R/T)	V=(C*(R/S))+(C*G)*(R/T)	W=I+L+N+U	X=I+L+P+V	Y=E-W	Z=E-X						
Community Water System (CWS) Size Category	Number of CWSs	Number of Customers (Service Connections)	Total O&M Cost Per Report	CCR Paper Delivery Cost	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS Size Category	Percent CWSs Without a Website [1]	Website Cost [2]	Website Cost per CWS Size Category	Third Party Mass Email Cost [3]	Third Party Mass Email Technology Cost per CWS Size Category	In-House Electronic Billing System Cost [4]	In-House Electronic Billing System Cost per CWS Size Category	Standard O&M Cost	Labor Rate	Telephone Calls per Hour	Database Entries per Hour	Email Collection Cost (passive)	Email Collection Cost (active)	Total First Year Cost (third party, passive) [5]	Total First Year Cost (in-house, active) [5]	Cost Difference (third party, passive)	Cost Difference (in-house, active)						
10,001 to 50,000	3,240	23,742,055	\$0.441	\$10,470,247	Paper	51.6%	Mail Paper CCR	\$5,402,648																							
					Electronic	48.4%	Mail Notification on Separate Mailing [6]	\$3,562,258	0.12	\$2,240	\$870,912															\$9,835,818		\$634,429			
							Mail Notification Statement on Bill [7]	As part of normal bill	0.12	\$2,240	\$870,912																\$6,273,560		\$4,196,687		
							Email URL for CCR		0.12	\$2,240	\$870,912	\$50	\$162,000	\$100,000	\$324,000,000	\$0.03	\$32.38	30	60	\$6,913,655	\$31,826,985	\$13,349,215	\$362,100,545	-\$2,878,968	-\$351,630,298						
							Email CCR as PDF					\$50	\$162,000	\$100,000	\$324,000,000	\$0.03	\$32.38	30	60	\$6,913,655	\$31,826,985	\$12,478,303	\$361,229,633	-\$2,008,056	-\$350,759,386						
											\$50	\$162,000	\$100,000	\$324,000,000	\$0.03	\$32.38	30	60	\$6,913,655	\$31,826,985	\$12,478,303	\$361,229,633	-\$2,008,056	-\$350,759,386							
50,001 to 99,999	541	11,843,581	\$0.421	\$4,986,148	Paper	51.6%	Mail Paper CCR	\$2,572,853																							
					Electronic	48.4%	Mail Notification on Separate Mailing [6]	\$1,645,169	0.12	\$2,240	\$145,421																\$4,363,443		\$622,705		
							Mail Notification Statement on Bill [7]	As part of normal bill	0.12	\$2,240	\$145,421																\$2,718,274		\$2,267,874		
							Email URL for CCR		0.12	\$2,240	\$145,421	\$100	\$54,100	\$100,000	\$54,100,000	\$0.007	\$32.38	30	60	\$3,176,433	\$15,876,700	\$5,948,807	\$72,694,974	-\$962,659	-\$67,708,826						
							Email CCR as PDF					\$100	\$54,100	\$100,000	\$54,100,000	\$0.007	\$32.38	30	60	\$3,176,433	\$15,876,700	\$5,803,386	\$72,549,553	-\$817,238	-\$67,563,405						
											\$100	\$54,100	\$100,000	\$54,100,000	\$0.007	\$32.38	30	60	\$3,176,433	\$15,876,700	\$5,803,386	\$72,549,553	-\$817,238	-\$67,563,405							
100,000 and over	416	38,233,405	\$0.421	\$16,096,264	Paper	51.6%	Mail Paper CCR	\$8,305,672																							
					Electronic	48.4%	Mail Notification on Separate Mailing [6]	\$5,310,926		\$0																	\$13,616,598		\$2,479,666		
							Mail Notification Statement on Bill [7]	As part of normal bill		\$0																		\$8,305,672		\$7,790,592	
							Email URL for CCR			\$0			\$150	\$62,400	\$100,000	\$41,600,000	\$0.007	\$32.38	30	60	\$10,254,149	\$51,253,103	\$18,622,221	\$101,158,775	-\$2,525,957	-\$85,062,511					
							Email CCR as PDF					\$150	\$62,400	\$100,000	\$41,600,000	\$0.007	\$32.38	30	60	\$10,254,149	\$51,253,103	\$18,622,221	\$101,158,775	-\$2,525,957	-\$85,062,511						
											\$150	\$62,400	\$100,000	\$41,600,000	\$0.007	\$32.38	30	60	\$10,254,149	\$51,253,103	\$18,622,221	\$101,158,775	-\$2,525,957	-\$85,062,511							

Notes:

[1] CWSs in the 100,000 and over Size Category are assumed to already have a website.

[2] Website cost is assumed to include a development cost and an annual hosting cost from a third party provider.

[3] Mass emailing cost is based on the average cost for a monthly subscription from several third party providers.

[4] Electronic Billing System Cost is assumed to be the purchase of a \$100,000 electronic billing system.

[5] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The total cost to Mail Notification on Separate Mailing should include the cost to mail the postcard.

[6] Separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on the bulk rate provided by the US Postal Service.

[7] No cost assumed if CWS adds notification to normal bill.

Assumptions:

Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.

Number of CWSs: PWSS ICR 2011, Appendix B, Exhibit 2.

Number of Customers (Service Connections): PWSS ICR 2011, Appendix B, Exhibit 2.

Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.

% Customers Receiving CCRs by This Method: 2012 MDH Survey.

Percent CWSs Without a Website: 2012 AWWA CCR Cost Savings Survey. It is assumed that all CWSs 100,000 and over already have a website.

Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. It is assumed that this will also be the cost to passively collect a customer's email address.

Labor Rate: PWSS ICR 2011, Appendix B, Exhibit 5.

Telephone Calls per Hour: it assumed that each phone call will last two minutes.

Database Entries per Hour: it is assumed that each database entry takes one minute.

Email Collection Cost (active): it is assumed that CWSs have telephone contact information for all customers.

Total First Year Cost (third party, passive): the total cost of mailing a paper copy of the CCR to a portion of the customers and the cost of electronically delivering the rest. This would include costs for website development, third party email delivery and passive email collection. The costs for Mail Notification on Separate Mailing or on a Bill are included in this column.

Total First Year Cost (in-house, active): the total cost of mailing a paper copy of the CCR to a portion of the customers and the cost of electronically delivering the rest. This would include costs for website development, the purchase of an in-house electronic billing system and active email collection.

Cost Difference (third party, passive): the cost difference between paper CCR delivery and mailing a paper copy of the CCR to a portion of the customers and the cost of electronically delivering the rest. The cost difference for Mail Notification on Separate Mailing or on a Bill are included in this column.

Cost Difference (in-house, active): the cost difference between paper CCR delivery and mailing a paper copy of the CCR to a portion of the customers and the cost of electronically delivering the rest.

Attachment 3-1: CWS Scenario Breakeven Point Summary
Scenario A - CWS has website, chooses third party mass emailing and passive email collection

Scenario A Breakeven Point Summary [1]						
CWS Size Category	Electronic Delivery Method	Breakeven Point (yrs) - Approach 1 (per average size CWS)		Breakeven Point (yrs) - Approach 2 (per average size CWS)		Breakeven Point Range (yrs)
		AWWA Data	MDH Data	AWWA Data	MDH Data	
10,001 to 50,000	Mail Notification on Separate Mailing	1	1	1	1	1
	Mail Notification Statement on Bill	1	1	1	1	1
	Email URL for CCR	3	3	3	3	3
	Email CCR as PDF	3	3	3	3	3
	Email CCR as embedded image	3	3	3	3	3
50,001 to 99,999	Mail Notification on Separate Mailing	1	1	1	1	1
	Mail Notification Statement on Bill	1	1	1	1	1
	Email URL for CCR	3	3	3	3	3
	Email CCR as PDF	3	3	3	3	3
	Email CCR as embedded image	3	3	3	3	3
100,000 and over	Mail Notification on Separate Mailing	1	1	1	1	1
	Mail Notification Statement on Bill	1	1	1	1	1
	Email URL for CCR	3	3	3	3	3
	Email CCR as PDF	3	3	3	3	3
	Email CCR as embedded image	3	3	3	3	3

Notes:

[1] A breakeven point is defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.

To see the breakeven point calculations for Scenario A, see Attachments 5-1, 5-2, 6-1 and 6-2.

Attachment 3-2: CWS Scenario Breakeven Point Summary

Scenario B - CWS has no website, buys a \$100,000 electronic billing system and uses active email collection

Scenario B Breakeven Point Summary [1]						
CWS Size Category	Electronic Delivery Method	Breakeven Point (yrs) - Approach 1 (per average size CWS)		Breakeven Point (yrs) - Approach 2 (per average size CWS)		Breakeven Point Range (yrs)
		AWWA Data	MDH Data	AWWA Data	MDH Data	
10,001 to 50,000	Mail Notification on Separate Mailing	Not Possible	13	11	11	11 - 13
	Mail Notification Statement on Bill	5	3	3	3	3 - 5
	Email URL for CCR	Not Possible	Not Possible	Not Possible	Not Possible	Not Possible
	Email CCR as PDF	Not Possible	Not Possible	Not Possible	Not Possible	Not Possible
	Email CCR as embedded image	Not Possible	Not Possible	Not Possible	Not Possible	Not Possible
50,001 to 99,999	Mail Notification on Separate Mailing	5	4	3	3	3 - 5
	Mail Notification Statement on Bill	2	2	2	2	2
	Email URL for CCR	Not Possible	Not Possible	Not Possible	Not Possible	Not Possible
	Email CCR as PDF	Not Possible	Not Possible	Not Possible	Not Possible	Not Possible
	Email CCR as embedded image	Not Possible	Not Possible	Not Possible	Not Possible	Not Possible
100,000 and over [2]	Mail Notification on Separate Mailing	1	1	1	1	1
	Mail Notification Statement on Bill	1	1	1	1	1
	Email URL for CCR	Not Possible	Not Possible	Not Possible	Not Possible	Not Possible
	Email CCR as PDF	Not Possible	Not Possible	Not Possible	Not Possible	Not Possible
	Email CCR as embedded image	Not Possible	Not Possible	Not Possible	Not Possible	Not Possible

Notes:

[1] A breakeven point is defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.

To see the breakeven point calculations for Scenario B, see Attachments 5-3, 5-4, 6-3 and 6-4.

[2] It is assumed that all CWSs in the Size Category of 100,000 and over already have a website.

Not Possible: it is not possible to recoup costs solely based on CCR Delivery.

Attachment 3-3: CWS Scenario Breakeven Point Summary
Scenario C - CWS has website, has electronic billing system and a percentage of the customer's emails

Scenario C Breakeven Point Summary [1]						
CWS Size Category	Electronic Delivery Method	Breakeven Point (yrs) - Approach 1 (per average size CWS)		Breakeven Point (yrs) - Approach 2 (per average size CWS)		Breakeven Point Range (yrs)
		AWWA Data	MDH Data	AWWA Data	MDH Data	
100,000 and over	Mail Notification on Separate Mailing	1	1	1	1	1
	Mail Notification Statement on Bill	1	1	1	1	1
	Email URL for CCR	1	1	1	1	1
	Email CCR as PDF	1	1	1	1	1
	Email CCR as embedded image	1	1	1	1	1

Notes:

[1] A breakeven point is defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.
To see the breakeven point calculations for Scenario C, see Attachments 5-5, 5-6, 6-5 and 6-6.

Attachment 3-4: CWS Scenario Breakeven Point Summary
Scenario D - CWS has no website, chooses third party mass emailing and active email collection

Scenario D Breakeven Point Summary [1]						
CWS Size Category	Electronic Delivery Method	Breakeven Point (yrs) - Approach 1 (per average size CWS)		Breakeven Point (yrs) - Approach 2 (per average size CWS)		Breakeven Point Range (yrs)
		AWWA Data	MDH Data	AWWA Data	MDH Data	
10,001 to 50,000	Mail Notification on Separate Mailing	Not Possible	13	11	11	11 - 13
	Mail Notification Statement on Bill	5	3	3	3	3 - 5
	Email URL for CCR	21	12	11	11	11 - 21
	Email CCR as PDF	12	8	8	8	8 - 12
	Email CCR as embedded image	12	8	8	8	8 - 12
50,001 to 99,999	Mail Notification on Separate Mailing	5	4	3	3	3 - 5
	Mail Notification Statement on Bill	2	2	2	2	2
	Email URL for CCR	15	10	9	9	9 - 15
	Email CCR as PDF	13	9	8	8	8 - 15
	Email CCR as embedded image	13	9	8	8	8 - 13
100,000 and over [2]	Mail Notification on Separate Mailing	1	1	1	1	1
	Mail Notification Statement on Bill	1	1	1	1	1
	Email URL for CCR	12	8	8	8	8 - 12
	Email CCR as PDF	12	8	8	8	8 - 12
	Email CCR as embedded image	12	8	8	8	8 - 12

Notes:

[1] A breakeven point is defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.

To see the breakeven point calculations for Scenario D, see Attachments 5-7, 5-8, 6-7 and 6-8.

[2] It is assumed that all CWSs in the Size Category of 100,000 and over already have a website.

Not Possible: it is not possible to recoup costs solely based on CCR Delivery.

Attachment 4-1: CWS Scenario First Year Cost Difference
Scenario A - CWS has website, chooses third party mass emailing and passive email collection

Scenario A First Year Cost Difference Summary [1]						
CWS Size Category	Electronic Delivery Method	First Year Cost Difference - Approach 1 (per average size CWS)		First Year Cost Difference - Approach 2 (per average size CWS)		First Year Cost Difference Range
		AWWA Data	MDH Data	AWWA Data	MDH Data	
10,001 to 50,000	Mail Notification on Separate Mailing	\$275	\$441	\$468	\$464	\$275 - \$468
	Mail Notification Statement on Bill	\$875	\$1,489	\$1,525	\$1,564	\$875 - \$1,564
	Email URL for CCR	-\$439	-\$604	-\$584	-\$620	\$-439 - \$-620
	Email CCR as PDF	-\$439	-\$604	-\$584	-\$620	\$-439 - \$-620
	Email CCR as embedded image	-\$439	-\$604	-\$584	-\$620	\$-439 - \$-620
50,001 to 99,999	Mail Notification on Separate Mailing	\$838	\$1,352	\$1,428	\$1,420	\$838 - \$1,428
	Mail Notification Statement on Bill	\$2,497	\$4,249	\$4,350	\$4,461	\$2,497 - \$4,461
	Email URL for CCR	-\$876	-\$1,451	-\$1,397	-\$1,511	\$-876 - \$-1,511
	Email CCR as PDF	-\$876	-\$1,451	-\$1,397	-\$1,511	\$-876 - \$-1,511
	Email CCR as embedded image	-\$876	-\$1,451	-\$1,397	-\$1,511	\$-876 - \$-1,511
100,000 and over	Mail Notification on Separate Mailing	\$3,521	\$5,677	\$5,997	\$5,960	\$3,521 - \$5,997
	Mail Notification Statement on Bill	\$10,485	\$17,837	\$18,263	\$18,727	\$10,485 - \$18,727
	Email URL for CCR	-\$3,403	-\$5,822	-\$5,594	-\$6,073	\$-3,403 - \$-6,073
	Email CCR as PDF	-\$3,403	-\$5,822	-\$5,594	-\$6,073	\$-3,403 - \$-6,073
	Email CCR as embedded image	-\$3,403	-\$5,822	-\$5,594	-\$6,073	\$-3,403 - \$-6,073

Notes:

[1] First Year Cost Difference is defined to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings, while a negative value indicates an increased cost. To see the first year cost difference calculations for Scenario A, see Attachments 5-1, 5-2, 6-1 and 6-2.

Attachment 4-2: CWS Scenario First Year Cost Difference

Scenario B - CWS has no website, buys a \$100,000 electronic billing system and uses active email collection

Scenario B First Year Cost Difference Summary [1]						
CWS Size Category	Electronic Delivery Method	First Year Cost Difference - Approach 1 (per average size CWS)		First Year Cost Difference - Approach 2 (per average size CWS)		First Year Cost Difference Range
		AWWA Data	MDH Data	AWWA Data	MDH Data	
10,001 to 50,000	Mail Notification on Separate Mailing	-\$1,965	-\$1,799	-\$1,772	-\$1,776	\$-1,772 - \$-1,965
	Mail Notification Statement on Bill	-\$1,365	-\$751	-\$715	-\$676	\$-676 - \$-1,365
	Email URL for CCR	-\$110,319	-\$110,484	-\$110,464	-\$110,500	\$-110,319 - \$-110,500
	Email CCR as PDF	-\$108,079	-\$108,244	-\$108,224	-\$108,260	\$-108,079 - \$-108,260
	Email CCR as embedded image	-\$108,079	-\$108,244	-\$108,224	-\$108,260	\$-108,079 - \$-108,260
50,001 to 99,999	Mail Notification on Separate Mailing	-\$1,402	-\$888	-\$812	-\$820	\$-812 - \$-1,402
	Mail Notification Statement on Bill	\$257	\$2,009	\$2,110	\$2,221	\$257 - \$2,221
	Email URL for CCR	-\$126,491	-\$127,067	-\$127,013	-\$127,126	\$-126,491 - \$-127,126
	Email CCR as PDF	-\$124,251	-\$124,827	-\$124,773	-\$124,886	\$-124,251 - \$-124,886
	Email CCR as embedded image	-\$124,251	-\$124,827	-\$124,773	-\$124,886	\$-124,251 - \$-124,886
100,000 and over [2]	Mail Notification on Separate Mailing	\$3,521	\$5,677	\$5,997	\$5,960	\$3,521 - \$5,997
	Mail Notification Statement on Bill	\$10,485	\$17,837	\$18,263	\$18,727	\$10,485 - \$18,727
	Email URL for CCR	-\$201,808	-\$204,227	-\$203,999	-\$204,478	\$-201,808 - \$-204,478
	Email CCR as PDF	-\$201,808	-\$204,227	-\$203,999	-\$204,478	\$-201,808 - \$-204,478
	Email CCR as embedded image	-\$201,808	-\$204,227	-\$203,999	-\$204,478	\$-201,808 - \$-204,478

Notes:

[1] First Year Cost Difference is defined to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings, while a negative value indicates an increased cost.

To see the first year cost difference calculations for Scenario B, see Attachments 5-3, 5-4, 6-3 and 6-4.

[2] It is assumed that all CWSs in the Size Category of 100,000 and over already have a website.

Attachment 4-3: CWS Scenario First Year Cost Difference

Scenario C - CWS has website, has electronic billing system, and a percentage of the customer's emails

Scenario C First Year Cost Difference Summary [1]						
CWS Size Category	Electronic Delivery Method	First Year Cost Difference - Approach 1 (per average size CWS)		First Year Cost Difference - Approach 2 (per average size CWS)		First Year Cost Difference Range
		AWWA Data	MDH Data	AWWA Data	MDH Data	
100,000 and over	Mail Notification on Separate Mailing	\$3,521	\$5,677	\$5,997	\$5,960	\$3,521 - \$5,997
	Mail Notification Statement on Bill	\$10,485	\$17,837	\$18,263	\$18,727	\$10,485 - \$18,727
	Email URL for CCR	\$10,485	\$17,837	\$18,263	\$18,727	\$10,485 - \$18,727
	Email CCR as PDF	\$10,485	\$17,837	\$18,263	\$18,727	\$10,485 - \$18,727
	Email CCR as embedded image	\$10,485	\$17,837	\$18,263	\$18,727	\$10,485 - \$18,727

Notes:

[1] First Year Cost Difference is defined to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings, while a negative value indicates an increased cost. To see the first year cost difference calculations for Scenario C, see Attachments 5-5, 5-6, 6-5 and 6-6.

Attachment 4-4: CWS Scenario First Year Cost Difference
Scenario D - CWS has no website, chooses third party mass emailing and active email collection

Scenario D First Year Cost Difference Summary [1]						
CWS Size Category	Electronic Delivery Method	First Year Cost Difference - Approach 1 (per average size CWS)		First Year Cost Difference - Approach 2 (per average size CWS)		First Year Cost Difference Range
		AWWA Data	MDH Data	AWWA Data	MDH Data	
10,001 to 50,000	Mail Notification on Separate Mailing	-\$1,965	-\$1,799	-\$1,772	-\$1,776	\$-1,772 - \$-1,965
	Mail Notification Statement on Bill	-\$1,365	-\$751	-\$715	-\$676	\$-676 - \$-1,365
	Email URL for CCR	-\$10,369	-\$10,534	-\$10,514	-\$10,550	\$-10,369 - \$-10,550
	Email CCR as PDF	-\$8,129	-\$8,294	-\$8,274	-\$8,310	\$-8,129 - \$-8,310
	Email CCR as embedded image	-\$8,129	-\$8,294	-\$8,274	-\$8,310	\$-8,129 - \$-8,310
50,001 to 99,999	Mail Notification on Separate Mailing	-\$1,402	-\$888	-\$812	-\$820	\$-812 - \$-1,402
	Mail Notification Statement on Bill	\$257	\$2,009	\$2,110	\$2,221	\$257 - \$2,221
	Email URL for CCR	-\$26,591	-\$27,167	-\$27,113	-\$27,226	\$-26,591 - \$-27,226
	Email CCR as PDF	-\$24,351	-\$24,927	-\$24,873	-\$24,986	\$-24,351 - \$-24,986
	Email CCR as embedded image	-\$24,351	-\$24,927	-\$24,873	-\$24,986	\$-24,351 - \$-24,986
100,000 and over [2]	Mail Notification on Separate Mailing	\$3,521	\$5,677	\$5,997	\$5,960	\$3,521 - \$5,997
	Mail Notification Statement on Bill	\$10,485	\$17,837	\$18,263	\$18,727	\$10,485 - \$18,727
	Email URL for CCR	-\$101,958	-\$104,377	-\$104,149	-\$104,628	\$-101,958 - \$-104,628
	Email CCR as PDF	-\$101,958	-\$104,377	-\$104,149	-\$104,628	\$-101,958 - \$-104,628
	Email CCR as embedded image	-\$101,958	-\$104,377	-\$104,149	-\$104,628	\$-101,958 - \$-104,628

Notes:

[1] First Year Cost Difference is defined to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings, while a negative value indicates an increased cost.

To see the first year cost difference calculations for Scenario D, see Attachments 5-7, 5-8, 6-7 and 6-8.

[2] It is assumed that all CWSs in the Size Category of 100,000 and over already have a website.

Attachment 5-1: CCR Electronic Delivery Cost Savings Estimates - Approach 1, AWWA Data
Scenario A - CWS has website, chooses third party mass emailing and passive email collection

A	B	C	D=B*C	E	F	G	H=D*F	I	J	K	L	M=(B*J)+(B*F)*(K/L)	N=H+I+M	O=D-N	P=I+M	Q=H+I	R=D-Q	S=P/R			
Community Water System (CWS) Size Category	Average Number of Customers (Service Connections) per CWS	Total O&M Cost Per Report	CCR Paper Delivery Cost per CWS	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS in Size Category	Third Party Mass Emailing Cost [1]	Standard O&M Cost	Labor Rate	Database Entries per Hour	Email Collection Cost (passive)	Total First Year Cost per CWS [2]	First Year Cost Difference per CWS	Costs to Recoup per CWS	Total Costs 2nd Year per CWS	Savings 2nd Year per CWS	Breakeven Point (yrs) per CWS			
10,001 to 50,000	7,328	\$0.441	\$3,232	Paper	72.9%	Mail Paper CCR	\$2,357														
				Electronic	26.4%	Mail Notification on Separate Mailing [3]	\$600								\$2,957	\$275	\$0	\$2,957	\$275	1	
						Mail Notification Statement on Bill [4]										\$2,357	\$875	\$0	\$2,357	\$875	1
						Email URL for CCR		\$50	\$0.03	\$32.38	60	\$1,264	\$3,671	-\$439	\$1,314	\$2,407	\$825	3			
						Email CCR as PDF		\$50	\$0.03	\$32.38	60	\$1,264	\$3,671	-\$439	\$1,314	\$2,407	\$825	3			
						Email CCR as embedded image		\$50	\$0.03	\$32.38	60	\$1,264	\$3,671	-\$439	\$1,314	\$2,407	\$825	3			
50,001 to 99,999	21,892	\$0.421	\$9,217	Paper	72.9%	Mail Paper CCR	\$6,720														
				Electronic	26.4%	Mail Notification on Separate Mailing [3]	\$1,659								\$8,379	\$838	\$0	\$8,379	\$838	1	
						Mail Notification Statement on Bill [4]										\$6,720	\$2,497	\$0	\$6,720	\$2,497	1
						Email URL for CCR		\$100	\$0.007	\$32.38	60	\$3,273	\$10,093	-\$876	\$3,373	\$6,820	\$2,397	3			
						Email CCR as PDF		\$100	\$0.007	\$32.38	60	\$3,273	\$10,093	-\$876	\$3,373	\$6,820	\$2,397	3			
						Email CCR as embedded image		\$100	\$0.007	\$32.38	60	\$3,273	\$10,093	-\$876	\$3,373	\$6,820	\$2,397	3			
100,000 and over	91,907	\$0.421	\$38,693	Paper	72.9%	Mail Paper CCR	\$28,208														
				Electronic	26.4%	Mail Notification on Separate Mailing [3]	\$6,964								\$35,172	\$3,521	\$0	\$35,172	\$3,521	1	
						Mail Notification Statement on Bill [4]										\$28,208	\$10,485	\$0	\$28,208	\$10,485	1
						Email URL for CCR		\$150	\$0.007	\$32.38	60	\$13,738	\$42,096	-\$3,403	\$13,888	\$28,208	\$10,485	3			
						Email CCR as PDF		\$150	\$0.007	\$32.38	60	\$13,738	\$42,096	-\$3,403	\$13,888	\$28,208	\$10,485	3			
						Email CCR as embedded image		\$150	\$0.007	\$32.38	60	\$13,738	\$42,096	-\$3,403	\$13,888	\$28,208	\$10,485	3			

Notes:

[1] Mass emailing cost is based on the average cost for a monthly subscription from several third party providers.

[2] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The annual cost to Mail Notification on Separate Mailing will include the delivery of a postcard - see note [3].

[3] A separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on a bulk rate provided by the US Postal Service. The annual cost of the postcard delivery is equal to B*F*(0.28+J).

[4] No cost assumed if CWS adds notification to normal bill.

Assumptions:

Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.

Average Number of Customers (Service Connections) per utility: PWSS ICR 2011, Appendix B, Exhibit 1.

Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.

% of Customers Receiving CCRs by This Method: 2011 AWWA Survey.

Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. It is assumed that this will also be the cost to passively collect a customer's email address.

Labor Rate: PWSS ICR 2011, Appendix B, Exhibit 5.

Database Entries per Hour: it is assumed that each database entry takes one minute.

Total first year cost: considered to be the cost for an average CWS in the size category to deliver the CCR based on the delivery method chosen.

First Year Cost Difference: considered to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings and a negative value indicates an increased cost.

Costs to Recoup: the estimated initial investment that a CWS would make to transition to the electronic delivery of a portion of their CCRs.

Total cost second year: costs are equal to or lower than the first year costs of switching to CCR electronic delivery as a portion of the initial first year costs do not occur in subsequent years. It is assumed that percentage of customers choosing electronic and paper delivery will stay the same in subsequent years.

Savings second year: savings made in subsequent years as compared to using only paper delivery.

Breakeven point: defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.

Attachment 5-2: CCR Electronic Delivery Cost Savings Estimates - Approach 1, MDH Data
Scenario A - CWS has website, chooses third party mass emailing and passive email collection

A	B	C	D=B*C	E	F	G	H=D*F	I	J	K	L	M=(B*J)+(B*F)*(K/L)	N=H+I+M	O=D-N	P=I+M	Q=H+I	R=D-Q	S=P/R				
Community Water System (CWS) Size Category	Average Number of Customers (Service Connections) per CWS	Total O&M Cost Per Report	CCR Paper Delivery Cost per CWS	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS in Size Category	Third Party Mass Emailing Cost [1]	Standard O&M Cost	Labor Rate	Database Entries per Hour	Email Collection Cost (passive)	Total First Year Cost per CWS [2]	First Year Cost Difference per CWS	Costs to Recoup per CWS	Total Costs 2nd Year per CWS	Savings 2nd Year per CWS	Breakeven Point (yrs) per CWS				
10,001 to 50,000	7,328	\$0.441	\$3,232	Paper	53.9%	Mail Paper CCR	\$1,743															
				Electronic	46.1%	Mail Notification on Separate Mailing [3]	\$1,048									\$2,791	\$441	\$0	\$2,791	\$441	1	
						Mail Notification Statement on Bill [4]											\$1,743	\$1,489	\$0	\$1,743	\$1,489	1
						Email URL for CCR		\$50	\$0.03	\$32.38	60	\$2,043	\$3,836	-\$604	\$2,093	\$1,793	\$1,439	3				
						Email CCR as PDF		\$50	\$0.03	\$32.38	60	\$2,043	\$3,836	-\$604	\$2,093	\$1,793	\$1,439	3				
						Email CCR as embedded image		\$50	\$0.03	\$32.38	60	\$2,043	\$3,836	-\$604	\$2,093	\$1,793	\$1,439	3				
50,001 to 99,999	21,892	\$0.421	\$9,217	Paper	53.9%	Mail Paper CCR	\$4,968															
				Electronic	46.1%	Mail Notification on Separate Mailing [3]	\$2,897									\$7,865	\$1,352	\$0	\$7,865	\$1,352	1	
						Mail Notification Statement on Bill [4]											\$4,968	\$4,249	\$0	\$4,968	\$4,249	1
						Email URL for CCR		\$100	\$0.007	\$32.38	60	\$5,600	\$10,668	-\$1,451	\$5,700	\$5,068	\$4,149	3				
						Email CCR as PDF		\$100	\$0.007	\$32.38	60	\$5,600	\$10,668	-\$1,451	\$5,700	\$5,068	\$4,149	3				
						Email CCR as embedded image		\$100	\$0.007	\$32.38	60	\$5,600	\$10,668	-\$1,451	\$5,700	\$5,068	\$4,149	3				
100,000 and over	91,907	\$0.421	\$38,693	Paper	53.9%	Mail Paper CCR	\$20,856															
				Electronic	46.1%	Mail Notification on Separate Mailing [3]	\$12,160									\$33,016	\$5,677	\$0	\$33,016	\$5,677	1	
						Mail Notification Statement on Bill [4]											\$20,856	\$17,837	\$0	\$20,856	\$17,837	1
						Email URL for CCR		\$150	\$0.007	\$32.38	60	\$23,509	\$44,515	-\$5,822	\$23,659	\$20,856	\$17,837	3				
						Email CCR as PDF		\$150	\$0.007	\$32.38	60	\$23,509	\$44,515	-\$5,822	\$23,659	\$20,856	\$17,837	3				
						Email CCR as embedded image		\$150	\$0.007	\$32.38	60	\$23,509	\$44,515	-\$5,822	\$23,659	\$20,856	\$17,837	3				

Notes:

[1] Mass emailing cost is based on the average cost for a monthly subscription from several third party providers.

[2] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The annual cost to Mail Notification on Separate Mailing will include the delivery of a postcard - see note [3].

[3] A separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on a bulk rate provided by the US Postal Service. The annual cost of the postcard delivery is equal to B*F*(\$0.28+J).

[4] No cost assumed if CWS adds notification to normal bill.

Assumptions:

Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.

Average Number of Customers (Service Connections) per utility: PWSS ICR 2011, Appendix B, Exhibit 1.

Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.

% Customers Receiving CCRs by This Method: 2012 MDH Survey.

Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. It is assumed that this will also be the cost to passively collect a customer's email address.

Labor Rate: PWSS ICR 2011, Appendix B, Exhibit 5.

Database Entries per Hour: it is assumed that each database entry takes one minute.

Total first year cost: considered to be the cost for an average CWS in the size category to deliver the CCR based on the delivery method chosen.

First Year Cost Difference: considered to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings and a negative value indicates an increased cost.

Costs to Recoup: the estimated initial investment that a CWS would make to transition to the electronic delivery of a portion of their CCRs.

Total cost second year: costs are equal to or lower than the first year costs of switching to CCR electronic delivery as a portion of the initial first year costs do not occur in subsequent years. It is assumed that percentage of customers choosing electronic and paper delivery will stay the same in subsequent years.

Savings second year: savings made in subsequent years as compared to using only paper delivery.

Breakeven point: defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.

Attachment 5-3: CCR Electronic Delivery Cost Savings Estimates - Approach 1, AWWA Data
Scenario B - CWS has no website, buys \$100,000 electronic billing system and uses active email collection

A	B	C	D=B*C	E	F	G	H=D*F	I	J	K	L	M	N=(B*(K/L))+(B*F)*(K/M)	O=H+I+J+N	P=D-O	Q=I+J+N	R=H+I+J	S=D-R	T=Q/S			
Community Water System (CWS) Size Category	Average Number of Customers (Service Connections) per CWS	Total O&M Cost Per Report	CCR Paper Delivery Cost per CWS	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS in Size Category	Website Cost [1]	Electronic Billing System Cost [2]	Labor Rate	Telephone Calls per Hour	Database Entries per Hour	Email Collection Cost (active)	Total First Year Cost per CWS [3]	First Year Cost Difference per CWS	Costs to Recoup per CWS	Total Costs 2nd Year per CWS [4]	Savings 2nd Year per CWS	Breakeven Point (yrs) per CWS			
10,001 to 50,000	7,328	\$0.441	\$3,232	Paper	72.9%	Mail Paper CCR	\$2,357															
				Electronic	26.4%	Mail Notification on Separate Mailing [5]	\$600	\$2,240								\$5,197	-\$1,965	\$2,240	\$3,197	\$35	Not Possible	
						Mail Notification Statement on Bill [6]		\$2,240									\$4,597	-\$1,365	\$2,240	\$2,597	\$635	5
						Email URL for CCR		\$2,240	\$100,000	\$32.38	30	60	\$8,954	\$113,551	-\$110,319	\$111,194	\$22,597	-\$19,365	Not Possible			
						Email CCR as PDF			\$100,000	\$32.38	30	60	\$8,954	\$111,311	-\$108,079	\$108,954	\$22,357	-\$19,125	Not Possible			
						Email CCR as embedded image			\$100,000	\$32.38	30	60	\$8,954	\$111,311	-\$108,079	\$108,954	\$22,357	-\$19,125	Not Possible			
50,001 to 99,999	21,892	\$0.421	\$9,217	Paper	72.9%	Mail Paper CCR	\$6,720															
				Electronic	26.4%	Mail Notification on Separate Mailing [5]	\$1,659	\$2,240								\$10,619	-\$1,402	\$2,240	\$8,619	\$598	5	
						Mail Notification Statement on Bill [6]		\$2,240									\$8,960	\$257	\$2,240	\$6,960	\$2,257	2
						Email URL for CCR		\$2,240	\$100,000	\$32.38	30	60	\$26,748	\$135,708	-\$126,491	\$128,988	\$26,960	-\$17,743	Not Possible			
						Email CCR as PDF			\$100,000	\$32.38	30	60	\$26,748	\$133,468	-\$124,251	\$126,748	\$26,720	-\$17,503	Not Possible			
						Email CCR as embedded image			\$100,000	\$32.38	30	60	\$26,748	\$133,468	-\$124,251	\$126,748	\$26,720	-\$17,503	Not Possible			
100,000 and over	91,907	\$0.421	\$38,693	Paper	72.9%	Mail Paper CCR	\$28,208															
				Electronic	26.4%	Mail Notification on Separate Mailing [5]	\$6,964	\$0								\$35,172	\$3,521	\$0	\$35,172	\$3,521	1	
						Mail Notification Statement on Bill [6]		\$0									\$28,208	\$10,485	\$0	\$28,208	\$10,485	1
						Email URL for CCR		\$0	\$100,000	\$32.38	30	60	\$112,293	\$240,501	-\$201,808	\$212,293	\$48,208	-\$9,515	Not Possible			
						Email CCR as PDF			\$100,000	\$32.38	30	60	\$112,293	\$240,501	-\$201,808	\$212,293	\$48,208	-\$9,515	Not Possible			
						Email CCR as embedded image			\$100,000	\$32.38	30	60	\$112,293	\$240,501	-\$201,808	\$212,293	\$48,208	-\$9,515	Not Possible			

Notes:
 [1] Website cost is assumed to include a development cost and an annual hosting cost from a third party provider. CWSs in the 100,000 and over CWS Size Category are assumed to already have a website.
 [2] Electronic Billing System Cost is assumed to be the purchase of a \$100,000 electronic billing system.
 [3] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The annual cost to Mail Notification on Separate Mailing will include the delivery of a postcard - see note [5].
 [4] Second and subsequent Year Costs will only include a website hosting fee (\$240) if a website was developed and electronic billing system maintenance fee (\$20,000) if one was purchased.
 [5] A separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on a bulk rate provided by the US Postal Service. The annual cost of the postcard delivery is equal to B*F*(0.28+Standard O&M Cost).
 [6] No cost assumed if CWS adds notification to normal bill.

Assumptions:
Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.
Average Number of Customers (Service Connections) per utility: PWSS ICR 2011, Appendix B, Exhibit 1.
Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. The Standard O&M Cost is \$0.03 per mailing for CWSs in the 10,001 to 50,000 Size Category and \$0.007 per mailing for a CWS in the larger Size Categories.
Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.
% of Customers Receiving CCRs by This Method: 2011 AWWA Survey.
Labor Rate: PWSS ICR 2011, Appendix B, Exhibit 5.
Telephone Calls per Hour: it assumed that each phone call will last two minutes.
Database Entries per Hour: it is assumed that each database entry takes one minute.
Total first year cost: considered to be the cost for an average CWS in the size category to deliver the CCR based on the delivery method chosen.
First Year Cost Difference: considered to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings and a negative value indicates an increased cost.
Costs to Recoup: the estimated initial investment that a CWS would make to transition to the electronic delivery of a portion of their CCRs.
Total cost second year: costs are equal to or lower than the first year costs of switching to CCR electronic delivery as a portion of the initial first year costs do not occur in subsequent years. It is assumed that percentage of customers choosing electronic and paper delivery will stay the same in subsequent years.
Savings second year: savings made in subsequent years as compared to using only paper delivery.
Breakeven point: defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.

Attachment 5-4: CCR Electronic Delivery Cost Savings Estimates - Approach 1, MDH Data
Scenario B - CWS has no website, buys \$100,000 electronic billing system and uses active email collection

A	B	C	D=B*C	E	F	G	H=D*F	I	J	K	L	M	N=(B*(K/L))+(B*F)*(K/M)	O=H+I+J+N	P=D-O	Q=I+J+N	R=H+J	S=D-R	T=Q/S			
Community Water System (CWS) Size Category	Average Number of Customers (Service Connections) per CWS	Total O&M Cost Per Report	CCR Paper Delivery Cost per CWS	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS in Size Category	Website Cost [1]	Electronic Billing System Cost [2]	Labor Rate	Telephone Calls per Hour	Database Entries per Hour	Email Collection Cost (active)	Total First Year Cost per CWS [3]	First Year Cost Difference per CWS	Costs to Recoup per CWS	Total Costs 2nd Year per CWS [4]	Savings 2nd Year per CWS	Breakeven Point (yrs) per CWS			
10,001 to 50,000	7,328	\$0.441	\$3,232	Paper	53.9%	Mail Paper CCR	\$1,743															
				Electronic	46.1%	Mail Notification on Separate Mailing [5]	\$1,048	\$2,240								\$5,031	-\$1,799	\$2,240	\$3,031	\$201	13	
						Mail Notification Statement on Bill [6]		\$2,240									\$3,983	-\$751	\$2,240	\$1,983	\$1,249	3
						Email URL for CCR		\$2,240	\$100,000	\$32.38	30	60	\$9,733	\$113,716	-\$110,484	\$111,973	\$21,983	-\$18,751	Not Possible			
						Email CCR as PDF			\$100,000	\$32.38	30	60	\$9,733	\$111,476	-\$108,244	\$109,733	\$21,743	-\$18,511	Not Possible			
						Email CCR as embedded image			\$100,000	\$32.38	30	60	\$9,733	\$111,476	-\$108,244	\$109,733	\$21,743	-\$18,511	Not Possible			
50,001 to 99,999	21,892	\$0.421	\$9,217	Paper	53.9%	Mail Paper CCR	\$4,968															
				Electronic	46.1%	Mail Notification on Separate Mailing [5]	\$2,897	\$2,240								\$10,105	-\$888	\$2,240	\$8,105	\$1,112	4	
						Mail Notification Statement on Bill [6]		\$2,240									\$7,208	\$2,009	\$2,240	\$5,208	\$4,009	2
						Email URL for CCR		\$2,240	\$100,000	\$32.38	30	60	\$29,076	\$136,284	-\$127,067	\$131,316	\$25,208	-\$15,991	Not Possible			
						Email CCR as PDF			\$100,000	\$32.38	30	60	\$29,076	\$134,044	-\$124,827	\$129,076	\$24,968	-\$15,751	Not Possible			
						Email CCR as embedded image			\$100,000	\$32.38	30	60	\$29,076	\$134,044	-\$124,827	\$129,076	\$24,968	-\$15,751	Not Possible			
100,000 and over	91,907	\$0.421	\$38,693	Paper	53.9%	Mail Paper CCR	\$20,856															
				Electronic	46.1%	Mail Notification on Separate Mailing [5]	\$12,160	\$0								\$33,016	\$5,677	\$0	\$33,016	\$5,677	1	
						Mail Notification Statement on Bill [6]		\$0									\$20,856	\$17,837	\$0	\$20,856	\$17,837	1
						Email URL for CCR		\$0	\$100,000	\$32.38	30	60	\$122,064	\$242,920	-\$204,227	\$222,064	\$40,856	-\$2,163	Not Possible			
						Email CCR as PDF			\$100,000	\$32.38	30	60	\$122,064	\$242,920	-\$204,227	\$222,064	\$40,856	-\$2,163	Not Possible			
						Email CCR as embedded image			\$100,000	\$32.38	30	60	\$122,064	\$242,920	-\$204,227	\$222,064	\$40,856	-\$2,163	Not Possible			

Notes:

- [1] Website cost is assumed to include a development cost and an annual hosting cost from a third party provider. CWSs in the 100,000 and over CWS Size Category are assumed to already have a website.
- [2] Electronic Billing System Cost is assumed to be the purchase of a \$100,000 electronic billing system.
- [3] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The annual cost to Mail Notification on Separate Mailing will include the delivery of a postcard - see note [5].
- [4] Second and subsequent Year Costs will only include a website hosting fee (\$240) if a website was developed and electronic billing system maintenance fee (\$20,000) if one was purchased.
- [5] A separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on a bulk rate provided by the US Postal Service. The annual cost of the postcard delivery is equal to B*F*(\$0.28+Standard O&M Cost).
- [6] No cost assumed if CWS adds notification to normal bill.

Assumptions:

- Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.
- Average Number of Customers (Service Connections) per utility: PWSS ICR 2011, Appendix B, Exhibit 1.
- Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. The Standard O&M Cost is \$0.03 per mailing for CWSs in the 10,001 to 50,000 Size Category and \$0.007 per mailing for a CWS in the larger Size Categories.
- Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.
- % Customers Receiving CCRs by This Method: 2012 MDH Survey.
- Labor Rate: PWSS ICR 2011, Appendix B, Exhibit 5.
- Telephone Calls per Hour: it assumed that each phone call will last two minutes.
- Database Entries per Hour: it is assumed that each database entry will take one minute.
- Total first year cost: considered to be the cost for an average CWS in the size category to deliver the CCR based on the delivery method chosen.
- First Year Cost Difference: considered to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings and a negative value indicates an increased cost.
- Costs to Recoup: the estimated initial investment that a CWS would make to transition to the electronic delivery of a portion of their CCRs.
- Total cost second year: costs are equal to or lower than the first year costs of switching to CCR electronic delivery as a portion of the initial first year costs do not occur in subsequent years. It is assumed that percentage of customers choosing electronic and paper delivery will stay the same in subsequent years.
- Savings second year: savings made in subsequent years as compared to using only paper delivery.
- Breakeven point: defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.

Attachment 5-5: CCR Electronic Delivery Cost Savings Estimates - Approach 1, AWWA Data
Scenario C - CWS has website, has an electronic billing system and a percentage of the customer's emails

A	B	C	D=B*C	E	F	G	H=D*F	I=H	J=D-I	K=H	L=D-K	M
Community Water System (CWS) Size Category	Average Number of Customers (Service Connections) per CWS	Total O&M Cost Per Report	CCR Paper Delivery Cost per CWS	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS in Size Category	Total First Year Cost per CWS [1]	First Year Cost Difference per CWS	Total Costs 2nd Year per CWS	Savings 2nd Year per CWS	Breakeven Point (yrs) per CWS [2]
100,000 and over	91,907	\$0.421	\$38,693	Paper	72.9%	Mail Paper CCR	\$28,208					
				Electronic	26.4%	Mail Notification on Separate Mailing [3]	\$6,964	\$35,172	\$3,521	\$35,172	\$3,521	1
						Mail Notification Statement on Bill [4]		\$28,208	\$10,485	\$28,208	\$10,485	1
						Email URL for CCR		\$28,208	\$10,485	\$28,208	\$10,485	1
						Email CCR as PDF		\$28,208	\$10,485	\$28,208	\$10,485	1
Email CCR as embedded image		\$28,208	\$10,485	\$28,208	\$10,485	1						

Notes:

[1] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The annual cost to Mail Notification on Separate Mailing will include the delivery of a postcard - see note [3].

[2] This scenario assumes that the CWS did not need to make any investment to switch to CCR electronic delivery, so it will break even the first year.

[3] A separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on a bulk rate provided by the US Postal Service. The annual cost of the postcard delivery is equal to B*F*(\$0.28+Standard O&M Cost).

[4] No cost assumed if CWS adds notification to normal bill.

Assumptions:

Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.

Average Number of Customers (Service Connections) per utility: PWSS ICR 2011, Appendix B, Exhibit 1.

Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.

Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. A CWS in the 100,000 and over Size Category has a Standard O&M Cost of \$0.007 per mailing.

% of Customers Receiving CCRs by This Method: 2011 AWWA Survey.

Total first year cost: considered to be the cost for an average CWS in the size category to deliver the CCR based on the delivery method chosen.

First Year Cost Difference: considered to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings and a negative value indicates an increased cost.

Costs to Recoup: the estimated initial investment that a CWS would make to transition to the electronic delivery of a portion of their CCRs.

Total cost second year: costs are equal to the first year costs of switching to CCR electronic delivery in this scenario. It is assumed that percentage of customers choosing electronic and paper delivery will stay the same in subsequent years.

Savings second year: savings made in subsequent years as compared to using only paper delivery.

Breakeven point: defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.

Attachment 5-6: CCR Electronic Delivery Cost Savings Estimates - Approach 1, MDH Data
Scenario C - CWS has website, has electronic billing system and a percentage of the customer's emails

A	B	C	D=B*C	E	F	G	H=D*F	I=H	J=D-I	K=H	L=D-K	M
Community Water System (CWS) Size Category	Average Number of Customers (Service Connections) per CWS	Total O&M Cost Per Report	CCR Paper Delivery Cost per CWS	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS in Size Category	Total First Year Cost per CWS [1]	First Year Cost Difference per CWS	Total Costs 2nd Year per CWS	Savings 2nd Year per CWS	Breakeven Point (yrs) per CWS [2]
100,000 and over	91,907	\$0.421	\$38,693	Paper	53.9%	Mail Paper CCR	\$20,856					
				Electronic	46.1%	Mail Notification on Separate Mailing [3]	\$12,160	\$33,016	\$5,677	\$33,016	\$5,677	1
						Mail Notification Statement on Bill [4]		\$20,856	\$17,837	\$20,856	\$17,837	1
						Email URL for CCR		\$20,856	\$17,837	\$20,856	\$17,837	1
						Email CCR as PDF		\$20,856	\$17,837	\$20,856	\$17,837	1
						Email CCR as embedded image		\$20,856	\$17,837	\$20,856	\$17,837	1

Notes:

- [1] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The annual cost to Mail Notification on Separate Mailing will include the delivery of a postcard - see note [3].
- [2] This scenario assumes that the CWS did not need to make any investment to switch to CCR electronic delivery, so it will break even the first year.
- [3] A separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on a bulk rate provided by the US Postal Service. The annual cost of the postcard delivery is equal to B*F*(\$0.28+Standard O&M Cost).
- [4] No cost assumed if CWS adds notification to normal bill.

Assumptions:

Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.

Average Number of Customers (Service Connections) per utility: PWSS ICR 2011, Appendix B, Exhibit 1.

Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.

Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. A CWS in the 100,000 and over Size Category has a Standard O&M Cost of \$0.007 per mailing.

% Customers Receiving CCRs by This Method: 2012 MDH Survey.

Total first year cost: considered to be the cost for an average CWS in the size category to deliver the CCR based on the delivery method chosen.

First Year Cost Difference: considered to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings and a negative value indicates an increased cost.

Costs to Recoup: the estimated initial investment that a CWS would make to transition to the electronic delivery of a portion of their CCRs.

Total cost second year: costs are equal to the first year costs of switching to CCR electronic delivery in this scenario. It is assumed that percentage of customers choosing electronic and paper delivery will stay the same in subsequent years.

Savings second year: savings made in subsequent years as compared to using only paper delivery.

Breakeven point: defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.

Attachment 5-7: CCR Electronic Delivery Cost Savings Estimates - Approach 1, AWWA Data
Scenario D - CWS has no website, chooses third party mass emailing and active email collection

A	B	C	D=B*C	E	F	G	H=D*F	I	J	K	L	M	N=(B*(K/L))+(B*F)*(K/M)	O=H+I+J+N	P=D-O	Q=I+J+N	R=H+J	S=D-R	T=Q/S			
Community Water System (CWS) Size Category	Average Number of Customers (Service Connections) per CWS	Total O&M Cost Per Report	CCR Paper Delivery Cost per CWS	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS in Size Category	Website Cost [1]	Third Party Mass Emailing Cost [2]	Labor Rate	Telephone Calls per Hour	Database Entries per Hour	Email Collection Cost (active)	Total First Year Cost per CWS [3]	First Year Cost Difference per CWS	Costs to Recoup per CWS	Total Costs 2nd Year per CWS [4]	Savings 2nd Year per CWS	Breakeven Point (yrs) per CWS			
10,001 to 50,000	7,328	\$0.441	\$3,232	Paper	72.9%	Mail Paper CCR	\$2,357															
				Electronic	26.4%	Mail Notification on Separate Mailing [5]	\$600	\$2,240								\$5,197	-\$1,965	\$2,240	\$3,197	\$35	Not Possible	
						Mail Notification Statement on Bill [6]		\$2,240									\$4,597	-\$1,365	\$2,240	\$2,597	\$635	5
						Email URL for CCR		\$2,240	\$50	\$32.38	30	60	\$8,954	\$13,601	-\$10,369	\$11,244	\$2,647	\$585	21			
						Email CCR as PDF			\$50	\$32.38	30	60	\$8,954	\$11,361	-\$8,129	\$9,004	\$2,407	\$825	12			
						Email CCR as embedded image			\$50	\$32.38	30	60	\$8,954	\$11,361	-\$8,129	\$9,004	\$2,407	\$825	12			
50,001 to 99,999	21,892	\$0.421	\$9,217	Paper	72.9%	Mail Paper CCR	\$6,720															
				Electronic	26.4%	Mail Notification on Separate Mailing [5]	\$1,659	\$2,240								\$10,619	-\$1,402	\$2,240	\$8,619	\$598	5	
						Mail Notification Statement on Bill [6]		\$2,240									\$8,960	-\$257	\$2,240	\$6,960	\$2,257	2
						Email URL for CCR		\$2,240	\$100	\$32.38	30	60	\$26,748	\$35,808	-\$26,591	\$29,088	\$7,060	\$2,157	15			
						Email CCR as PDF			\$100	\$32.38	30	60	\$26,748	\$33,568	-\$24,351	\$26,848	\$6,820	\$2,397	13			
						Email CCR as embedded image			\$100	\$32.38	30	60	\$26,748	\$33,568	-\$24,351	\$26,848	\$6,820	\$2,397	13			
100,000 and over	91,907	\$0.421	\$38,693	Paper	72.9%	Mail Paper CCR	\$28,208															
				Electronic	26.4%	Mail Notification on Separate Mailing [5]	\$6,964	\$0								\$35,172	\$3,521	\$0	\$35,172	\$3,521	1	
						Mail Notification Statement on Bill [6]		\$0									\$28,208	\$10,485	\$0	\$28,208	\$10,485	1
						Email URL for CCR		\$0	\$150	\$32.38	30	60	\$112,293	\$140,651	-\$101,958	\$112,443	\$28,208	\$10,485	12			
						Email CCR as PDF			\$150	\$32.38	30	60	\$112,293	\$140,651	-\$101,958	\$112,443	\$28,208	\$10,485	12			
						Email CCR as embedded image			\$150	\$32.38	30	60	\$112,293	\$140,651	-\$101,958	\$112,443	\$28,208	\$10,485	12			

Notes:

[1] Website cost is assumed to include a development cost and an annual hosting cost from a third party provider. CWSs in the 100,000 and over CWS Size Category are assumed to already have a website.

[2] Electronic Billing System Cost is assumed to be the purchase of a \$100,000 electronic billing system.

[3] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The annual cost to Mail Notification on Separate Mailing will include the delivery of a postcard - see note [5].

[4] Second and subsequent Year Costs will include a website hosting fee (\$240) if website was developed

[5] A separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on a bulk rate provided by the US Postal Service. The annual cost of the postcard delivery is equal to B*F*(0.28+Standard O&M Cost).

[6] No cost assumed if CWS adds notification to normal bill.

Assumptions:

Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.

Average Number of Customers (Service Connections) per utility: PWSS ICR 2011, Appendix B, Exhibit 1.

Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. The Standard O&M Cost is \$0.03 per mailing for CWSs in the 10,001 to 50,000 Size Category and \$0.007 per mailing for a CWS in the larger Size Categories.

Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.

% of Customers Receiving CCRs by This Method: 2011 AWWA Survey.

Labor Rate: PWSS ICR 2011, Appendix B, Exhibit 5.

Telephone Calls per Hour: it assumed that each phone call will last two minutes.

Database Entries per Hour: it is assumed that each database entry will take one minute.

Total first year cost: considered to be the cost for an average CWS in the size category to deliver the CCR based on the delivery method chosen.

First Year Cost Difference: considered to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings and a negative value indicates an increased cost.

Costs to Recoup: the estimated initial investment that a CWS would make to transition to the electronic delivery of a portion of their CCRs.

Total cost second year: costs are equal to or lower than the first year costs of switching to CCR electronic delivery as a portion of the initial first year costs do not occur in subsequent years. It is assumed that percentage of customers choosing electronic and paper delivery will stay the same in subsequent years.

Savings second year: savings made in subsequent years as compared to using only paper delivery.

Breakeven point: defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.

Attachment 5-8: CCR Electronic Delivery Cost Savings Estimates - Approach 1, MDH Data
Scenario D - CWS has no website, chooses third party mass emailing and active email collection

A	B	C	D=B*C	E	F	G	H=D*F	I	J	K	L	M	N=(B*(K/L))+(B*F)*(K/M)	O=H+I+J+N	P=D-O	Q=I+J+N	R=H+J	S=D-R	T=Q/S			
Community Water System (CWS) Size Category	Average Number of Customers (Service Connections) per CWS	Total O&M Cost Per Report	CCR Paper Delivery Cost per CWS	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS in Size Category	Website Cost [1]	Third Party Mass Emailing Cost [2]	Labor Rate	Telephone Calls per Hour	Database Entries per Hour	Email Collection Cost (active)	Total First Year Cost per CWS [3]	First Year Cost Difference per CWS	Costs to Recoup per CWS	Total Costs 2nd Year per CWS [4]	Savings 2nd Year per CWS	Breakeven Point (yrs) per CWS			
10,001 to 50,000	7,328	\$0.441	\$3,232	Paper	53.9%	Mail Paper CCR	\$1,743															
				Electronic	46.1%	Mail Notification on Separate Mailing [5]	\$1,048	\$2,240								\$5,031	-\$1,799	\$2,240	\$3,031	\$201	13	
						Mail Notification Statement on Bill [6]		\$2,240									\$3,983	-\$751	\$2,240	\$1,983	\$1,249	3
						Email URL for CCR		\$2,240	\$50	\$32.38	30	60	\$9,733	\$13,766	-\$10,534	\$12,023	\$2,033	\$1,199		12		
						Email CCR as PDF			\$50	\$32.38	30	60	\$9,733	\$11,526	-\$8,294	\$9,783	\$1,793	\$1,439		8		
						Email CCR as embedded image			\$50	\$32.38	30	60	\$9,733	\$11,526	-\$8,294	\$9,783	\$1,793	\$1,439		8		
50,001 to 99,999	21,892	\$0.421	\$9,217	Paper	53.9%	Mail Paper CCR	\$4,968															
				Electronic	46.1%	Mail Notification in a Separate Mailing [5]	\$2,897	\$2,240								\$10,105	-\$888	\$2,240	\$8,105	\$1,112	4	
						Mail Notification Statement on Bill [6]		\$2,240									\$7,208	\$2,009	\$2,240	\$5,208	\$4,009	2
						Email URL for CCR		\$2,240	\$100	\$32.38	30	60	\$29,076	\$36,384	-\$27,167	\$31,416	\$5,308	\$3,909		10		
						Email CCR as PDF			\$100	\$32.38	30	60	\$29,076	\$34,144	-\$24,927	\$29,176	\$5,068	\$4,149		9		
						Email CCR as embedded image			\$100	\$32.38	30	60	\$29,076	\$34,144	-\$24,927	\$29,176	\$5,068	\$4,149		9		
100,000 and over	91,907	\$0.421	\$38,693	Paper	53.9%	Mail Paper CCR	\$20,856															
				Electronic	46.1%	Mail Notification in a Separate Mailing [5]	\$12,160	\$0								\$33,016	\$5,677	\$0	\$33,016	\$5,677	1	
						Mail Notification Statement on Bill [6]		\$0									\$20,856	\$17,837	\$0	\$20,856	\$17,837	1
						Email URL for CCR		\$0	\$150	\$32.38	30	60	\$122,064	\$143,070	-\$104,377	\$122,214	\$20,856	\$17,837		8		
						Email CCR as PDF			\$150	\$32.38	30	60	\$122,064	\$143,070	-\$104,377	\$122,214	\$20,856	\$17,837		8		
						Email CCR as embedded image			\$150	\$32.38	30	60	\$122,064	\$143,070	-\$104,377	\$122,214	\$20,856	\$17,837		8		

Notes:

- [1] Website cost is assumed to include a development cost and an annual hosting cost from a third party provider. CWSs in the 100,000 and over CWS Size Category are assumed to already have a website.
- [2] Electronic Billing System Cost is assumed to be the purchase of a \$100,000 electronic billing system.
- [3] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The annual cost to Mail Notification on Separate Mailing will include the delivery of a postcard - see note [5].
- [4] Second and subsequent Year Costs will include a website hosting fee (\$240) if website was developed
- [5] A separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on a bulk rate provided by the US Postal Service. The annual cost of the postcard delivery is equal to B*F*(0.28+Standard O&M Cost).
- [6] No cost assumed if CWS adds notification to normal bill.

Assumptions:

- Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.
- Average Number of Customers (Service Connections) per utility: PWSS ICR 2011, Appendix B, Exhibit 1.
- Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. The Standard O&M Cost is \$0.03 per mailing for CWSs in the 10,001 to 50,000 Size Category and \$0.007 per mailing for a CWS in the larger Size Categories.
- Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.
- % Customers Receiving CCRs by This Method: 2012 MDH Survey.
- Labor Rate: based on the PWSS ICR 2011, Appendix B, Exhibit 5.
- Telephone Calls per Hour: it assumed that each phone call will last two minutes.
- Database Entries per Hour: it is assumed that each database entry will take one minute.
- Total first year cost: considered to be the cost for an average CWS in the size category to deliver the CCR based on the delivery method chosen.
- First Year Cost Difference: considered to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings and a negative value indicates an increased cost.
- Costs to Recoup: the estimated initial investment that a CWS would make to transition to the electronic delivery of a portion of their CCRs.
- Total cost second year: costs are equal to or lower than the first year costs of switching to CCR electronic delivery as a portion of the initial first year costs do not occur in subsequent years. It is assumed that percentage of customers choosing electronic and paper delivery will stay the same in subsequent years.
- Savings second year: savings made in subsequent years as compared to using only paper delivery.
- Breakeven point: defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.

Attachment 6-1: CCR Electronic Delivery Cost Savings Estimates - Approach 2, AWWA Data
Scenario A - CWS has website, chooses third party mass emailing and passive email collection

A	B	C	D=B*C	E	F	G	H=D*F	I	J	K	L	M=(B*J)+(B*F)*(K/L)	N=H+I+M	O=D-N	P=I+M	Q=H+I	R=D-Q	S=P/R		
Community Water System (CWS) Size Category	Average Number of Customers (Service Connections) per CWS	Total O&M Cost Per Report	CCR Paper Delivery Cost per CWS	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS in Size Category	Third Party Mass Emailing Cost [1]	Standard O&M Cost	Labor Rate	Database Entries per Hour	Email Collection Cost (passive)	Total First Year Cost per CWS [2]	First Year Cost Difference per CWS	Costs to Recoup per CWS	Total Costs 2nd Year per CWS	Savings 2nd Year per CWS	Breakeven Point (yrs) per CWS		
10,001 to 50,000	7,328	\$0.441	\$3,232	Paper	52.8%	Mail Paper CCR	\$1,707													
				Electronic	46.5%	Mail Notification on Separate Mailing [3]	\$1,057								\$2,764	\$468	\$0	\$2,764	\$468	1
						Mail Notification Statement on Bill [4]									\$1,707	\$1,525	\$0	\$1,707	\$1,525	1
						Email URL for CCR		\$50	\$0.03	\$32.38	60	\$2,059	\$3,816	-\$584	\$2,109	\$1,757	\$1,475	3		
						Email CCR as PDF		\$50	\$0.03	\$32.38	60	\$2,059	\$3,816	-\$584	\$2,109	\$1,757	\$1,475	3		
						Email CCR as embedded image		\$50	\$0.03	\$32.38	60	\$2,059	\$3,816	-\$584	\$2,109	\$1,757	\$1,475	3		
50,001 to 99,999	21,892	\$0.421	\$9,217	Paper	52.8%	Mail Paper CCR	\$4,867													
				Electronic	46.5%	Mail Notification on Separate Mailing [3]	\$2,922								\$7,789	\$1,428	\$0	\$7,789	\$1,428	1
						Mail Notification Statement on Bill [4]									\$4,867	\$4,350	\$0	\$4,867	\$4,350	1
						Email URL for CCR		\$100	\$0.007	\$32.38	60	\$5,647	\$10,614	-\$1,397	\$5,747	\$4,967	\$4,250	3		
						Email CCR as PDF		\$100	\$0.007	\$32.38	60	\$5,647	\$10,614	-\$1,397	\$5,747	\$4,967	\$4,250	3		
						Email CCR as embedded image		\$100	\$0.007	\$32.38	60	\$5,647	\$10,614	-\$1,397	\$5,747	\$4,967	\$4,250	3		
100,000 and over	91,907	\$0.421	\$38,693	Paper	52.8%	Mail Paper CCR	\$20,430													
				Electronic	46.5%	Mail Notification on Separate Mailing [3]	\$12,266								\$32,696	\$5,997	\$0	\$32,696	\$5,997	1
						Mail Notification Statement on Bill [4]									\$20,430	\$18,263	\$0	\$20,430	\$18,263	1
						Email URL for CCR		\$150	\$0.007	\$32.38	60	\$23,707	\$44,287	-\$5,594	\$23,857	\$20,430	\$18,263	3		
						Email CCR as PDF		\$150	\$0.007	\$32.38	60	\$23,707	\$44,287	-\$5,594	\$23,857	\$20,430	\$18,263	3		
						Email CCR as embedded image		\$150	\$0.007	\$32.38	60	\$23,707	\$44,287	-\$5,594	\$23,857	\$20,430	\$18,263	3		

Notes:

[1] Mass emailing cost is based on the average cost for a monthly subscription from several third party providers.

[2] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The annual cost to Mail Notification on Separate Mailing will include the delivery of a postcard - see note [3].

[3] A separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on a bulk rate provided by the US Postal Service. The annual cost of the postcard delivery is equal to B*F*(0.28+J).

[4] No cost assumed if CWS adds notification to normal bill.

Assumptions:

Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.

Average Number of Customers (Service Connections) per utility: PWSS ICR 2011, Appendix B, Exhibit 1.

Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.

% of Customers Receiving CCRs by This Method: 2011 AWWA Survey.

Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. It is assumed that this will also be the cost to passively collect a customer's email address.

Labor Rate: PWSS ICR 2011, Appendix B, Exhibit 5.

Database Entries per Hour: it is assumed that each database entry will take one minute.

Total first year cost: considered to be the cost for an average CWS in the size category to deliver the CCR based on the delivery method chosen.

First Year Cost Difference: considered to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings and a negative value indicates an increased cost.

Costs to Recoup: the estimated initial investment that a CWS would make to transition to the electronic delivery of a portion of their CCRs.

Total cost second year: costs are equal to or lower than the first year costs of switching to CCR electronic delivery as a portion of the initial first year costs do not occur in subsequent years. It is assumed that percentage of customers choosing electronic and paper delivery will stay the same in subsequent years.

Savings second year: savings made in subsequent years as compared to using only paper delivery.

Breakeven point: defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.

Attachment 6-2: CCR Electronic Delivery Cost Savings Estimates - Approach 2, MDH Data
Scenario A - CWS has website, chooses third party mass emailing and passive email collection

A	B	C	D=B*C	E	F	G	H=D*F	I	J	K	L	M=(B*J)+(B*F)*(K/L)	N=H+I+M	O=D-N	P=I+M	Q=H+I	R=D-Q	S=P/R		
Community Water System (CWS) Size Category	Average Number of Customers (Service Connections) per CWS	Total O&M Cost Per Report	CCR Paper Delivery Cost per CWS	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS in Size Category	Third Party Mass Emailing Cost [1]	Standard O&M Cost	Labor Rate	Database Entries per Hour	Email Collection Cost (passive)	Total First Year Cost per CWS [2]	First Year Cost Difference per CWS	Costs to Recoup per CWS	Total Costs 2nd Year per CWS	Savings 2nd Year per CWS	Breakeven Point (yrs) per CWS		
10,001 to 50,000	7,328	\$0.441	\$3,232	Paper	51.6%	Mail Paper CCR	\$1,668													
				Electronic	48.4%	Mail Notification on Separate Mailing [3]	\$1,100								\$2,768	\$464	\$0	\$2,768	\$464	1
						Mail Notification Statement on Bill [4]									\$1,668	\$1,564	\$0	\$1,668	\$1,564	1
						Email URL for CCR		\$50	\$0.03	\$32.38	60	\$2,134	\$3,852	-\$620	\$2,184	\$1,718	\$1,514	3		
						Email CCR as PDF		\$50	\$0.03	\$32.38	60	\$2,134	\$3,852	-\$620	\$2,184	\$1,718	\$1,514	3		
						Email CCR as embedded image		\$50	\$0.03	\$32.38	60	\$2,134	\$3,852	-\$620	\$2,184	\$1,718	\$1,514	3		
50,001 to 99,999	21,892	\$0.421	\$9,217	Paper	51.6%	Mail Paper CCR	\$4,756													
				Electronic	48.4%	Mail Notification on Separate Mailing [3]	\$3,041								\$7,797	\$1,420	\$0	\$7,797	\$1,420	1
						Mail Notification Statement on Bill [4]									\$4,756	\$4,461	\$0	\$4,756	\$4,461	1
						Email URL for CCR		\$100	\$0.007	\$32.38	60	\$5,872	\$10,728	-\$1,511	\$5,972	\$4,856	\$4,361	3		
						Email CCR as PDF		\$100	\$0.007	\$32.38	60	\$5,872	\$10,728	-\$1,511	\$5,972	\$4,856	\$4,361	3		
						Email CCR as embedded image		\$100	\$0.007	\$32.38	60	\$5,872	\$10,728	-\$1,511	\$5,972	\$4,856	\$4,361	3		
100,000 and over	91,907	\$0.421	\$38,693	Paper	51.6%	Mail Paper CCR	\$19,966													
				Electronic	48.4%	Mail Notification on Separate Mailing [3]	\$12,767								\$32,733	\$5,960	\$0	\$32,733	\$5,960	1
						Mail Notification Statement on Bill [4]									\$19,966	\$18,727	\$0	\$19,966	\$18,727	1
						Email URL for CCR		\$150	\$0.007	\$32.38	60	\$24,650	\$44,766	-\$6,073	\$24,800	\$19,966	\$18,727	3		
						Email CCR as PDF		\$150	\$0.007	\$32.38	60	\$24,650	\$44,766	-\$6,073	\$24,800	\$19,966	\$18,727	3		
						Email CCR as embedded image		\$150	\$0.007	\$32.38	60	\$24,650	\$44,766	-\$6,073	\$24,800	\$19,966	\$18,727	3		

Notes:

[1] Mass emailing cost is based on the average cost for a monthly subscription from several third party providers.

[2] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The annual cost to Mail Notification on Separate Mailing will include the delivery of a postcard - see note [3].

[3] A separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on a bulk rate provided by the US Postal Service. The annual cost of the postcard delivery is equal to B*F*(0.28+J).

[4] No cost assumed if CWS adds notification to normal bill.

Assumptions:

Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.

Average Number of Customers (Service Connections) per utility: PWSS ICR 2011, Appendix B, Exhibit 1.

Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.

% Customers Receiving CCRs by This Method: 2012 MDH Survey.

Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. It is assumed that this will also be the cost to passively collect a customer's email address.

Labor Rate: PWSS ICR 2011, Appendix B, Exhibit 5.

Database Entries per Hour: it is assumed that each database entry will take one minute.

Total first year cost: considered to be the cost for an average CWS in the size category to deliver the CCR based on the delivery method chosen.

First Year Cost Difference: considered to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings and a negative value indicates an increased cost.

Costs to Recoup: the estimated initial investment that a CWS would make to transition to the electronic delivery of a portion of their CCRs.

Total cost second year: costs are equal to or lower than the first year costs of switching to CCR electronic delivery as a portion of the initial first year costs do not occur in subsequent years. It is assumed that percentage of customers choosing electronic and paper delivery will stay the same in subsequent years.

Savings second year: savings made in subsequent years as compared to using only paper delivery.

Breakeven point: defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.

Attachment 6-3: CCR Electronic Delivery Cost Savings Estimates - Approach 2, AWWA Data
Scenario B - CWS has no website, buys \$100,000 electronic billing system and uses active email collection

A	B	C	D=B*C	E	F	G	H=D*F	I	J	K	L	M	N=(B*(K/L))+(B*F)*(K/M)	O=H+I+J+N	P=D-O	Q=I+J+N	R=H+J	S=D-R	T=Q/S			
Community Water System (CWS) Size Category	Average Number of Customers (Service Connections) per CWS	Total O&M Cost Per Report	CCR Paper Delivery Cost per CWS	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS in Size Category	Website Cost [1]	Electronic Billing System Cost [2]	Labor Rate	Telephone Calls per Hour	Database Entries per Hour	Email Collection Cost (active)	Total First Year Cost per CWS [3]	First Year Cost Difference per CWS	Costs to Recoup per CWS	Total Costs 2nd Year per CWS [4]	Savings 2nd Year per CWS	Breakeven Point (yrs) per CWS			
10,001 to 50,000	7,328	\$0.441	\$3,232	Paper	52.8%	Mail Paper CCR	\$1,707															
				Electronic	46.5%	Mail Notification on Separate Mailing [5]	\$1,057	\$2,240								\$5,004	-\$1,772	\$2,240	\$3,004	\$228	11	
						Mail Notification Statement on Bill [6]		\$2,240									\$3,947	-\$715	\$2,240	\$1,947	\$1,285	3
						Email URL for CCR		\$2,240	\$100,000	\$32.38	30	60	\$9,749	\$113,696	-\$110,464	\$111,989	\$21,947	-\$18,715	Not Possible			
						Email CCR as PDF			\$100,000	\$32.38	30	60	\$9,749	\$111,456	-\$108,224	\$109,749	\$21,947	-\$18,715	Not Possible			
						Email CCR as embedded image			\$100,000	\$32.38	30	60	\$9,749	\$111,456	-\$108,224	\$109,749	\$21,947	-\$18,715	Not Possible			
50,001 to 99,999	21,892	\$0.421	\$9,217	Paper	52.8%	Mail Paper CCR	\$4,867															
				Electronic	46.5%	Mail Notification on Separate Mailing [5]	\$2,922	\$2,240								\$10,029	-\$812	\$2,240	\$8,029	\$1,188	3	
						Mail Notification Statement on Bill [6]		\$2,240									\$7,107	\$2,110	\$2,240	\$5,107	\$4,110	2
						Email URL for CCR		\$2,240	\$100,000	\$32.38	30	60	\$29,123	\$136,230	-\$127,013	\$131,363	\$25,107	-\$15,890	Not Possible			
						Email CCR as PDF			\$100,000	\$32.38	30	60	\$29,123	\$133,990	-\$124,773	\$129,123	\$25,107	-\$15,890	Not Possible			
						Email CCR as embedded image			\$100,000	\$32.38	30	60	\$29,123	\$133,990	-\$124,773	\$129,123	\$25,107	-\$15,890	Not Possible			
100,000 and over	91,907	\$0.421	\$38,693	Paper	52.8%	Mail Paper CCR	\$20,430															
				Electronic	46.5%	Mail Notification on Separate Mailing [5]	\$12,266	\$0								\$32,696	\$5,997	\$0	\$32,696	\$5,997	1	
						Mail Notification Statement on Bill [6]		\$0									\$20,430	\$18,263	\$0	\$20,430	\$18,263	1
						Email URL for CCR		\$0	\$100,000	\$32.38	30	60	\$122,262	\$242,692	-\$203,999	\$222,262	\$40,430	-\$1,737	Not Possible			
						Email CCR as PDF			\$100,000	\$32.38	30	60	\$122,262	\$242,692	-\$203,999	\$222,262	\$40,430	-\$1,737	Not Possible			
						Email CCR as embedded image			\$100,000	\$32.38	30	60	\$122,262	\$242,692	-\$203,999	\$222,262	\$40,430	-\$1,737	Not Possible			

Notes:

[1] Website cost is assumed to include a development cost and an annual hosting cost from a third party provider. CWSs in the 100,000 and over CWS Size Category are assumed to already have a website.

[2] Electronic Billing System Cost is assumed to be the purchase of a \$100,000 electronic billing system.

[3] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The annual cost to Mail Notification on Separate Mailing will include the delivery of a postcard - see note [5].

[4] Second and subsequent Year Costs will only include a website hosting fee (\$240) if a website was developed and electronic billing system maintenance fee (\$20,000) if one was purchased.

[5] A separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on a bulk rate provided by the US Postal Service. The annual cost of the postcard delivery is equal to B*F*(0.28+Standard O&M Cost).

[6] No cost assumed if CWS adds notification to normal bill.

Assumptions:

Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.

Average Number of Customers (Service Connections) per utility: PWSS ICR 2011, Appendix B, Exhibit 1.

Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. The Standard O&M Cost is \$0.03 per mailing for CWSs in the 10,001 to 50,000 Size Category and \$0.007 per mailing for a CWS in the larger Size Categories.

Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.

% of Customers Receiving CCRs by This Method: 2011 AWWA Survey.

Labor Rate: PWSS ICR 2011, Appendix B, Exhibit 5.

Telephone Calls per Hour: it is assumed that each phone call will last two minutes.

Database Entries per Hour: it is assumed that each database entry will take one minute.

Total first year cost: considered to be the cost for an average CWS in the size category to deliver the CCR based on the delivery method chosen.

First Year Cost Difference: considered to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings and a negative value indicates an increased cost.

Costs to Recoup: the estimated initial investment that a CWS would make to transition to the electronic delivery of a portion of their CCRs.

Total cost second year: costs are equal to or lower than the first year costs of switching to CCR electronic delivery as a portion of the initial first year costs do not occur in subsequent years. It is assumed that percentage of customers choosing electronic and paper delivery will stay the same in subsequent years.

Savings second year: savings made in subsequent years as compared to using only paper delivery.

Breakeven point: defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.

Attachment 6-4: CCR Electronic Delivery Cost Savings Estimates - Approach 2, MDH Data
Scenario B - CWS has no website, buys \$100,000 electronic billing system and uses active email collection

A	B	C	D=B*C	E	F	G	H=D*F	I	J	K	L	M	N=(B*(K/L))+((B*F)*(K/M))	O=H+I+J+N	P=D-O	Q=I+J+N	R=H+I+J	S=D-R	T=Q/S	
Community Water System (CWS) Size Category	Average Number of Customers (Service Connections) per CWS	Total O&M Cost Per Report	CCR Paper Delivery Cost per CWS	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS in Size Category	Website Cost [1]	Electronic Billing System Cost [2]	Labor Rate	Telephone Calls per Hour	Database Entries per Hour	Email Collection Cost (active)	Total First Year Cost per CWS [3]	First Year Cost Difference per CWS	Costs to Recoup per CWS	Total Costs 2nd Year per CWS [4]	Savings 2nd Year per CWS	Breakeven Point (yrs) per CWS	
10,001 to 50,000	7,328	\$0.441	\$3,232	Paper	51.6%	Mail Paper CCR	\$1,668													
				Electronic	48.4%	Mail Notification on Separate Mailing [5]	\$1,100	\$2,240				\$5,008	-\$1,776	\$2,240	\$3,008	\$224	11			
						Mail Notification Statement on Bill [6]	\$2,240	\$2,240				\$3,908	-\$676	\$2,240	\$1,908	\$1,324	3			
						Email URL for CCR		\$2,240	\$100,000	\$32.38	30	60	\$9,824	-\$110,500	\$112,064	\$21,908	-\$18,676	Not Possible		
						Email CCR as PDF			\$100,000	\$32.38	30	60	\$9,824	-\$108,260	\$109,824	\$21,908	-\$18,676	Not Possible		
						Email CCR as embedded image			\$100,000	\$32.38	30	60	\$9,824	-\$108,260	\$109,824	\$21,908	-\$18,676	Not Possible		
50,001 to 99,999	21,892	\$0.421	\$9,217	Paper	51.6%	Mail Paper CCR	\$4,756													
				Electronic	48.4%	Mail Notification on Separate Mailing [5]	\$3,041	\$2,240				\$10,037	-\$820	\$2,240	\$8,037	\$1,180	3			
						Mail Notification Statement on Bill [6]	\$2,240	\$2,240				\$6,996	\$2,221	\$2,240	\$4,996	\$4,221	2			
						Email URL for CCR		\$2,240	\$100,000	\$32.38	30	60	\$29,347	-\$127,126	\$131,587	\$24,996	-\$15,779	Not Possible		
						Email CCR as PDF			\$100,000	\$32.38	30	60	\$29,347	-\$124,886	\$129,347	\$24,996	-\$15,779	Not Possible		
						Email CCR as embedded image			\$100,000	\$32.38	30	60	\$29,347	-\$124,886	\$129,347	\$24,996	-\$15,779	Not Possible		
100,000 and over	91,907	\$0.421	\$38,693	Paper	51.6%	Mail Paper CCR	\$19,966													
				Electronic	48.4%	Mail Notification on Separate Mailing [5]	\$12,767	\$0				\$32,733	\$5,960	\$0	\$32,733	\$5,960	1			
						Mail Notification Statement on Bill [6]	\$0	\$0				\$19,966	\$18,727	\$0	\$19,966	\$18,727	1			
						Email URL for CCR		\$0	\$100,000	\$32.38	30	60	\$123,205	-\$204,478	\$223,205	\$39,966	-\$1,273	Not Possible		
						Email CCR as PDF			\$100,000	\$32.38	30	60	\$123,205	-\$204,478	\$223,205	\$39,966	-\$1,273	Not Possible		
						Email CCR as embedded image			\$100,000	\$32.38	30	60	\$123,205	-\$204,478	\$223,205	\$39,966	-\$1,273	Not Possible		

Notes:

- [1] Website cost is assumed to include a development cost and an annual hosting cost from a third party provider. CWSs in the 100,000 and over CWS Size Category are assumed to already have a website.
- [2] Electronic Billing System Cost is assumed to be the purchase of a \$100,000 electronic billing system.
- [3] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The annual cost to Mail Notification on Separate Mailing will include the delivery of a postcard - see note [5].
- [4] Second and subsequent Year Costs will only include a website hosting fee (\$240) if a website was developed and electronic billing system maintenance fee (\$20,000) if one was purchased.
- [5] A separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on a bulk rate provided by the US Postal Service. The annual cost of the postcard delivery is equal to B*F*((\$0.28+Standard O&M Cost)).
- [6] No cost assumed if CWS adds notification to normal bill.

Assumptions:

- Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.
- Average Number of Customers (Service Connections) per utility: PWSS ICR 2011, Appendix B, Exhibit 1.
- Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. The Standard O&M Cost is \$0.03 per mailing for CWSs in the 10,001 to 50,000 Size Category and \$0.007 per mailing for a CWS in the larger Size Categories.
- Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.
- % Customers Receiving CCRs by This Method: 2012 MDH Survey.
- Labor Rate: PWSS ICR 2011, Appendix B, Exhibit 5.
- Telephone Calls per Hour: it assumed that each phone call will last two minutes.
- Database Entries per Hour: it is assumed that each database entry will take one minute.
- Total first year cost: considered to be the cost for an average CWS in the size category to deliver the CCR based on the delivery method chosen.
- First Year Cost Difference: considered to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings and a negative value indicates an increased cost.
- Costs to Recoup: the estimated initial investment that a CWS would make to transition to the electronic delivery of a portion of their CCRs.
- Total cost second year: costs are equal to or lower than the first year costs of switching to CCR electronic delivery as a portion of the initial first year costs do not occur in subsequent years. It is assumed that percentage of customers choosing electronic and paper delivery will stay the same in subsequent years.
- Savings second year: savings made in subsequent years as compared to using only paper delivery.
- Breakeven point: defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.

Attachment 6-5: CCR Electronic Delivery Cost Savings Estimates - Approach 2, AWWA Data
Scenario C - CWS has website, has an electronic billing system and a percentage of the customer's emails

A	B	C	D=B*C	E	F	G	H=D*F	I=H	J=D-I	K=H	L=D-K	M
Community Water System (CWS) Size Category	Average Number of Customers (Service Connections) per CWS	Total O&M Cost Per Report	CCR Paper Delivery Cost per CWS	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS in Size Category	Total First Year Cost per CWS [1]	First Year Cost Difference per CWS	Total Costs 2nd Year per CWS	Savings 2nd Year per CWS	Breakeven Point (yrs) per CWS [2]
100,000 and over	91,907	\$0.421	\$38,693	Paper	52.8%	Mail Paper CCR	\$20,430					
				Electronic	46.5%	Mail Notification on Separate Mailing [3]	\$12,266	\$32,696	\$5,997	\$32,696	\$5,997	1
						Mail Notification Statement on Bill [4]		\$20,430	\$18,263	\$20,430	\$18,263	1
						Email URL for CCR		\$20,430	\$18,263	\$20,430	\$18,263	1
						Email CCR as PDF		\$20,430	\$18,263	\$20,430	\$18,263	1
Email CCR as embedded image		\$20,430	\$18,263	\$20,430	\$18,263	1						

Notes:

- [1] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The annual cost to Mail Notification on Separate Mailing will include the delivery of a postcard - see note [3].
- [2] This scenario assumes that the CWS did not need to make any investment to switch to CCR electronic delivery, so it will break even the first year.
- [3] A separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on a bulk rate provided by the US Postal Service. The annual cost of the postcard delivery is equal to B*F*(0.28+Standard O&M Cost).
- [4] No cost assumed if CWS adds notification to normal bill.

Assumptions:

Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.

Average Number of Customers (Service Connections) per utility: PWSS ICR 2011, Appendix B, Exhibit 1.

Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.

Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. A CWS in the 100,000 and over Size Category has a Standard O&M Cost of \$0.007 per mailing.

% of Customers Receiving CCRs by This Method: 2011 AWWA Survey.

Total first year cost: considered to be the cost for an average CWS in the size category to deliver the CCR based on the delivery method chosen.

First Year Cost Difference: considered to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings and a negative value indicates an increased cost.

Costs to Recoup: the estimated initial investment that a CWS would make to transition to the electronic delivery of a portion of their CCRs.

Total cost second year: costs are equal to the first year costs of switching to CCR electronic delivery in this scenario. It is assumed that percentage of customers choosing electronic and paper delivery will stay the same in subsequent years.

Savings second year: savings made in subsequent years as compared to using only paper delivery.

Breakeven point: defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.

Attachment 6-6: CCR Electronic Delivery Cost Savings Estimates - Approach 2, MDH Data
Scenario C - CWS has website, has electronic billing system and a percentage of the customer's emails

A	B	C	D=B*C	E	F	G	H=D*F	I=H	J=D-I	K=H	L=D-K	M
Community Water System (CWS) Size Category	Average Number of Customers (Service Connections) per CWS	Total O&M Cost Per Report	CCR Paper Delivery Cost per CWS	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS in Size Category	Total First Year Cost per CWS [1]	First Year Cost Difference per CWS	Total Costs 2nd Year per CWS	Savings 2nd Year per CWS	Breakeven Point (yrs) per CWS [2]
100,000 and over	91,907	\$0.421	\$38,693	Paper	51.6%	Mail Paper CCR	\$19,966					
				Electronic	48.4%	Mail Notification on Separate Mailing [3]	\$12,767	\$32,733	\$5,960	\$32,733	\$5,960	1
						Mail Notification Statement on Bill [4]	\$19,966	\$19,966	\$18,727	\$19,966	\$18,727	1
						Email URL for CCR		\$19,966	\$18,727	\$19,966	\$18,727	1
						Email CCR as PDF		\$19,966	\$18,727	\$19,966	\$18,727	1
						Email CCR as embedded image		\$19,966	\$18,727	\$19,966	\$18,727	1

Notes:

[1] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The annual cost to Mail Notification on Separate Mailing will include the delivery of a postcard - see note [3].

[2] This scenario assumes that the CWS did not need to make any investment to switch to CCR electronic delivery, so it will break even the first year.

[3] A separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on a bulk rate provided by the US Postal Service. The annual cost of the postcard delivery is equal to B*F*(\$0.28+Standard O&M Cost).

[4] No cost assumed if CWS adds notification to normal bill.

Assumptions:

Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.

Average Number of Customers (Service Connections) per utility: PWSS ICR 2011, Appendix B, Exhibit 1.

Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.

Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. A CWS in the 100,000 and over Size Category has a Standard O&M Cost of \$0.007 per mailing.

% Customers Receiving CCRs by This Method: 2012 MDH Survey.

Total first year cost: considered to be the cost for an average CWS in the size category to deliver the CCR based on the delivery method chosen.

First Year Cost Difference: considered to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings and a negative value indicates an increased cost.

Costs to Recoup: the estimated initial investment that a CWS would make to transition to the electronic delivery of a portion of their CCRs.

Total cost second year: costs are equal to the first year costs of switching to CCR electronic delivery in this scenario. It is assumed that percentage of customers choosing electronic and paper delivery will stay the same in subsequent years.

Savings second year: savings made in subsequent years as compared to using only paper delivery.

Breakeven point: defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.

Attachment 6-7: CCR Electronic Delivery Cost Savings Estimates - Approach 2, AWWA Data
Scenario D - CWS has no website, chooses third party mass emailing and active email collection

A	B	C	D=B*C	E	F	G	H=D*F	I	J	K	L	M	N=(B*(K/L))+(B*F)*(K/M)	O=H+I+J+N	P=D-O	Q=I+J+N	R=H+J	S=D-R	T=Q/S			
Community Water System (CWS) Size Category	Average Number of Customers (Service Connections) per CWS	Total O&M Cost Per Report	CCR Paper Delivery Cost per CWS	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS in Size Category	Website Cost [1]	Third Party Mass Emailing Cost [2]	Labor Rate	Telephone Calls per Hour	Database Entries per Hour	Email Collection Cost (active)	Total First Year Cost per CWS [3]	First Year Cost Difference per CWS	Costs to Recoup per CWS	Total Costs 2nd Year per CWS [4]	Savings 2nd Year per CWS	Breakeven Point (yrs) per CWS			
10,001 to 50,000	7,328	\$0.441	\$3,232	Paper	52.8%	Mail Paper CCR	\$1,707															
				Electronic	46.5%	Mail Notification on Separate Mailing [5]	\$1,057	\$2,240								\$5,004	-\$1,772	\$2,240	\$3,004	\$228	11	
						Mail Notification Statement on Bill [6]		\$2,240									\$3,947	-\$715	\$2,240	\$1,947	\$1,285	3
						Email URL for CCR		\$2,240	\$50	\$32.38	30	60	\$9,749	\$13,746	-\$10,514	\$12,039	\$1,997	\$1,235	11			
						Email CCR as PDF			\$50	\$32.38	30	60	\$9,749	\$11,506	-\$8,274	\$9,799	\$1,757	\$1,475	8			
				Email CCR as embedded image			\$50	\$32.38	30	60	\$9,749	\$11,506	-\$8,274	\$9,799	\$1,757	\$1,475	8					
50,001 to 99,999	21,892	\$0.421	\$9,217	Paper	52.8%	Mail Paper CCR	\$4,867															
				Electronic	46.5%	Mail Notification on Separate Mailing [5]	\$2,922	\$2,240								\$10,029	-\$812	\$2,240	\$8,029	\$1,188	3	
						Mail Notification Statement on Bill [6]		\$2,240									\$7,107	-\$2,110	\$2,240	\$5,107	\$4,110	2
						Email URL for CCR		\$2,240	\$100	\$32.38	30	60	\$29,123	\$36,330	-\$27,113	\$31,463	\$5,207	\$4,010	9			
						Email CCR as PDF			\$100	\$32.38	30	60	\$29,123	\$34,090	-\$24,873	\$29,223	\$4,967	\$4,250	8			
				Email CCR as embedded image			\$100	\$32.38	30	60	\$29,123	\$34,090	-\$24,873	\$29,223	\$4,967	\$4,250	8					
100,000 and over	91,907	\$0.421	\$38,693	Paper	52.8%	Mail Paper CCR	\$20,430															
				Electronic	46.5%	Mail Notification on Separate Mailing [5]	\$12,266	\$0								\$32,696	-\$5,997	\$0	\$32,696	\$5,997	1	
						Mail Notification Statement on Bill [6]		\$0									\$20,430	-\$18,263	\$0	\$20,430	\$18,263	1
						Email URL for CCR		\$0	\$150	\$32.38	30	60	\$122,262	\$142,842	-\$104,149	\$122,412	\$20,430	\$18,263	8			
						Email CCR as PDF			\$150	\$32.38	30	60	\$122,262	\$142,842	-\$104,149	\$122,412	\$20,430	\$18,263	8			
				Email CCR as embedded image			\$150	\$32.38	30	60	\$122,262	\$142,842	-\$104,149	\$122,412	\$20,430	\$18,263	8					

Notes:

- [1] Website cost is assumed to include a development cost and an annual hosting cost from a third party provider. CWSs in the 100,000 and over CWS Size Category are assumed to already have a website.
- [2] Electronic Billing System Cost is assumed to be the purchase of a \$100,000 electronic billing system.
- [3] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The annual cost to Mail Notification on Separate Mailing will include the delivery of a postcard - see note [5].
- [4] Second and subsequent Year Costs will include a website hosting fee (\$240) if website was developed
- [5] A separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on a bulk rate provided by the US Postal Service. The annual cost of the postcard delivery is equal to B*F*(\$0.28+Standard O&M Cost).
- [6] No cost assumed if CWS adds notification to normal bill.

Assumptions:

- Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.
- Average Number of Customers (Service Connections) per utility: PWSS ICR 2011, Appendix B, Exhibit 1.
- Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. The Standard O&M Cost is \$0.03 per mailing for CWSs in the 10,001 to 50,000 Size Category and \$0.007 per mailing for a CWS in the larger Size Categories.
- Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.
- % of Customers Receiving CCRs by This Method: 2011 AWWA Survey.
- Labor Rate: PWSS ICR 2011, Appendix B, Exhibit 5.
- Telephone Calls per Hour: it assumed that each phone call will last two minutes.
- Database Entries per Hour: it is assumed that each database entry will take one minute.
- Total first year cost: considered to be the cost for an average CWS in the size category to deliver the CCR based on the delivery method chosen.
- First Year Cost Difference: considered to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings and a negative value indicates an increased cost.
- Costs to Recoup: the estimated initial investment that a CWS would make to transition to the electronic delivery of a portion of their CCRs.
- Total cost second year: costs are equal to or lower than the first year costs of switching to CCR electronic delivery as a portion of the initial first year costs do not occur in subsequent years. It is assumed that percentage of customers choosing electronic and paper delivery will stay the same in subsequent years.
- Savings second year: savings made in subsequent years as compared to using only paper delivery.
- Breakeven point: defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.

Attachment 6-8: CCR Electronic Delivery Cost Savings Estimates - Approach 2, MDH Data
Scenario D - CWS has no website, chooses third party mass emailing and active email collection

A	B	C	D=B*C	E	F	G	H=D*F	I	J	K	L	M	N=(B*(K/L))+(B*F)*(K/M)	O=H+I+J+N	P=D-O	Q=I+J+N	R=H+J	S=D-R	T=Q/S			
Community Water System (CWS) Size Category	Average Number of Customers (Service Connections) per CWS	Total O&M Cost Per Report	CCR Paper Delivery Cost per CWS	Delivery Approaches	% of Customers Receiving CCRs by This Method	Delivery Method	CCR Mailing Cost per CWS in Size Category	Website Cost [1]	Third Party Mass Emailing Cost [2]	Labor Rate	Telephone Calls per Hour	Database Entries per Hour	Email Collection Cost (active)	Total First Year Cost per CWS [3]	First Year Cost Difference per CWS	Costs to Recoup per CWS	Total Costs 2nd Year per CWS [4]	Savings 2nd Year per CWS	Breakeven Point (yrs) per CWS			
10,001 to 50,000	7,328	\$0.441	\$3,232	Paper	51.6%	Mail Paper CCR	\$1,668															
				Electronic	48.4%	Mail Notification on Separate Mailing [5]	\$1,100	\$2,240								\$5,008	-\$1,776	\$2,240	\$3,008	\$224	11	
						Mail Notification Statement on Bill [6]		\$2,240									\$3,908	-\$676	\$2,240	\$1,908	\$1,324	3
						Email URL for CCR		\$2,240	\$50	\$32.38	30	60	\$9,824	\$13,782	-\$10,550	\$12,114	\$1,958	\$1,274	11			
						Email CCR as PDF		\$50	\$32.38	30	60	\$9,824	\$11,542	-\$8,310	\$9,874	\$1,718	\$1,514	8				
Email CCR as embedded image		\$50	\$32.38	30	60	\$9,824	\$11,542	-\$8,310	\$9,874	\$1,718	\$1,514	8										
50,001 to 99,999	21,892	\$0.421	\$9,217	Paper	51.6%	Mail Paper CCR	\$4,756															
				Electronic	48.4%	Mail Notification on Separate Mailing [5]	\$3,041	\$2,240								\$10,037	-\$820	\$2,240	\$8,037	\$1,180	3	
						Mail Notification Statement on Bill [6]		\$2,240									\$6,996	\$2,221	\$2,240	\$4,996	\$4,221	2
						Email URL for CCR		\$2,240	\$100	\$32.38	30	60	\$29,347	\$36,443	-\$27,226	\$31,687	\$5,096	\$4,121	9			
						Email CCR as PDF		\$100	\$32.38	30	60	\$29,347	\$34,203	-\$24,986	\$29,447	\$4,856	\$4,361	8				
Email CCR as embedded image		\$100	\$32.38	30	60	\$29,347	\$34,203	-\$24,986	\$29,447	\$4,856	\$4,361	8										
100,000 and over	91,907	\$0.421	\$38,693	Paper	51.6%	Mail Paper CCR	\$19,966															
				Electronic	48.4%	Mail Notification on Separate Mailing [5]	\$12,767	\$0								\$32,733	\$5,960	\$0	\$32,733	\$5,960	1	
						Mail Notification Statement on Bill [6]		\$0									\$19,966	\$18,727	\$0	\$19,966	\$18,727	1
						Email URL for CCR		\$0	\$150	\$32.38	30	60	\$123,205	\$143,321	-\$104,628	\$123,355	\$19,966	\$18,727	8			
						Email CCR as PDF		\$150	\$32.38	30	60	\$123,205	\$143,321	-\$104,628	\$123,355	\$19,966	\$18,727	8				
Email CCR as embedded image		\$150	\$32.38	30	60	\$123,205	\$143,321	-\$104,628	\$123,355	\$19,966	\$18,727	8										

Notes:

[1] Website cost is assumed to include a development cost and an annual hosting cost from a third party provider. CWSs in the 100,000 and over CWS Size Category are assumed to already have a website.

[2] Electronic Billing System Cost is assumed to be the purchase of a \$100,000 electronic billing system.

[3] Total first year cost is the cost to mail a paper CCR to a percentage of customers plus the cost to deliver the rest of the CCRs by the selected electronic delivery method. The annual cost to Mail Notification on Separate Mailing will include the delivery of a postcard - see note [5].

[4] Second and subsequent Year Costs will include a website hosting fee (\$240) if website was developed

[5] A separate mailing is assumed to be a postcard with a mailing cost of \$0.28 per postcard based on a bulk rate provided by the US Postal Service. The annual cost of the postcard delivery is equal to B*F*(\$0.28+Standard O&M Cost).

[6] No cost assumed if CWS adds notification to normal bill.

Assumptions:

Community Water System (CWS) Size Category: PWSS ICR 2011, Appendix B, Exhibit 2.

Average Number of Customers (Service Connections) per utility: PWSS ICR 2011, Appendix B, Exhibit 1.

Standard O&M Cost: PWSS ICR 2011, Appendix B, Exhibit 3. The Standard O&M cost per report includes the cost of paper, photocopying or printing, folding, and affixing labels. The Standard O&M Cost is \$0.03 per mailing for CWSs in the 10,001 to 50,000 Size Category and \$0.007 per mailing for a CWS in the larger Size Categories.

Total O&M Cost Per Report: PWSS ICR 2011, Appendix B, Exhibit 3. Total O&M cost per report includes the Standard O&M cost per report (e.g., cost of paper, photocopying or printing, folding, and affixing labels) and the postage per report.

% Customers Receiving CCRs by This Method: 2012 MDH Survey.

Labor Rate: PWSS ICR 2011, Appendix B, Exhibit 5.

Telephone Calls per Hour: it assumed that each phone call will last two minutes.

Database Entries per Hour: it is assumed that each database entry will take one minute.

Total first year cost: considered to be the cost for an average CWS in the size category to deliver the CCR based on the delivery method chosen.

First Year Cost Difference: considered to be the difference in first year total costs for CWSs to transition to the electronic delivery of a portion of their CCRs. A positive value indicates a savings and a negative value indicates an increased cost.

Costs to Recoup: the estimated initial investment that a CWS would make to transition to the electronic delivery of a portion of their CCRs.

Total cost second year: costs are equal to or lower than the first year costs of switching to CCR electronic delivery as a portion of the initial first year costs do not occur in subsequent years. It is assumed that percentage of customers choosing electronic and paper delivery will stay the same in subsequent years.

Savings second year: savings made in subsequent years as compared to using only paper delivery.

Breakeven point: defined as the number of years it takes to recoup the initial investment in CCR electronic delivery.