

Supporting Statement A

Collection and Compilation of Water Pipeline Field Performance Data

OMB Control Number 1006-XXXX

Terms of Clearance: None

General Instructions

A completed Supporting Statement A must accompany each request for approval of a collection of information. The Supporting Statement must be prepared in the format described below, and must contain the information specified below. If an item is not applicable, provide a brief explanation. When the question "Does this ICR (information collection request) contain surveys, censuses, or employ statistical methods?" is checked "Yes," then a Supporting Statement B must be completed. OMB reserves the right to require the submission of additional information with respect to any request for approval.

Specific Instructions

Justification

- 1. Explain the circumstances that make the collection of information necessary. Identify any legal or administrative requirements that necessitate the collection.**

The Bureau of Reclamation (Reclamation) is responsible for water resource management, specifically as it applies to the oversight and/or operation of numerous diversion, delivery, and storage projects it built throughout the western United States for irrigation, water supply, and attendant hydroelectric power generation. The Reclamation Act of 1902 (Pub. L. 57-161) authorizes the collection of information in this ICR. Reclamation's official mission is to "manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public." Currently Reclamation operates about 180 projects in the 17 western states with a total Reclamation investment of over \$11 billion.

A congressional subcommittee relayed concerns regarding the implementation and review of Reclamation's Technical Memorandum (TM) 8140-CC-2004-1 ("Corrosion Considerations for Buried Metallic Water Pipe"). The subcommittee's stated concern is that this TM may be applying different standards of reliability to different materials and potentially increasing project costs unnecessarily. The congressional subcommittee understands that Reclamation contracted with the National Academy of Sciences in 2008 for an independent review of the TM. While the National Academy generally supported the TM, the congressional subcommittee notes that the National Academy also recommended in their report ("Review

of the Bureau of Reclamation's Corrosion Prevention Standards for Ductile Iron Pipe'' (2009)) that Reclamation assemble data on pipeline reliability for all types of pipe specified in Table 2 of TM 8140-CC-2004-1 along with the specified corrosion protection applied in the various soil types. Reclamation has attempted but not yet completed this recommendation, which has contributed to continued concerns and challenges to the TM. Therefore, the congressional subcommittee has directed Reclamation to not use the TM as the sole basis to deny funding or approval of a project or to disqualify any material from use in highly corrosive soils until it has assembled data on pipeline reliability as recommended by the National Academy, and conducted an analysis of the performance of these types of pipe installed in the same or similar conditions. This analysis shall apply consistent standards of reliability and cost effectiveness over the life cycle of the project. To comply with this request, Reclamation must collect statistically valid and up-to-date data about the reliability of different types of pipe identified in Table 2 of TM 8140-CC-2004-1. Accurate, up-to-date, and statistically valid data is critical to assessing whether Reclamation's current corrosion considerations need to be modified.

- 2. Indicate how, by whom, and for what purpose the information is to be used. Except for a new collection, indicate the actual use the agency has made of the information received from the current collection. Be specific. If this collection is a form or a questionnaire, every question needs to be justified.**

The data collected through this effort will be used to assess the need for updates to Reclamation's Corrosion Prevention Criteria and Requirements table (Table 2 of TM 8140-CC-2004-1). Respondents to this data collection effort will be personnel working for either Federal water facilities (Federal facility) or water utilities. Primarily Reclamation personnel will use the data analysis to update the table for corrosion prevention criteria and minimum protection requirements. This table provides a guideline to use in determining both the minimum type of external coating needed and whether cathodic protection is needed for the installation of different types of buried metallic pipe. Virginia Polytechnic Institute and State University (Virginia Tech), the contractor hired by Reclamation to conduct the survey, will use the information from this survey to perform life-cycle analysis of pipe performance.

The data collection will be done by an internet-based survey. The web-based survey will be used to collect data from water utilities and Federal facilities. "Federal facilities" are facilities that were constructed by Reclamation but are now owned and/or operated and maintained by water districts.

This project will deliver a Web-based GIS-driven platform called WATER PIPEiD. While Reclamation is sponsoring this one-time survey, it will not be involved with the ongoing operation and maintenance of WATER PIPEiD after the survey is completed. Virginia Tech envisions this to be "a Living Database Platform for Advanced Asset Management", addressing all three major water pipeline management levels including strategic, tactical, and operational performance. PIPEiD will: 1) provide the required uniform national standards for water pipeline infrastructure systems data and metadata (contextual information about the data); 2) establish a centralized platform which utilizes a GIS-driven Web-based interface; 3) provide dynamic aggregation and centralized storage of pipeline reliability performance data from water utilities and Reclamation, including detailed locations, structural, and

environmental conditions; and 4) leverage the centralized data set for enhanced analysis and understanding. This proposed platform will utilize the standardized data and metadata models to better understand water pipeline performance in several ways. First, it will advance the knowledge of pipeline performance data aggregation from multiple dissimilar data sources, and secondly will improve the understanding of the state of buried water pipeline infrastructure, its failure rates, the general effectiveness of corrosion control measures, and other key parameters.

The Table below contains the pipe related data parameters for performance evaluation along with a brief explanation of each data point.

No	Data Point	Unit	Brief Justification
1	Pipe Segment Identifier (node to node, joint to joint, length)	ID/Feet	Data will come from various sources in addition to utilities. Pipe ID is necessary to match externally acquired data to specific portions of the pipe
2	Pipe Manufacturing Year, Installation Year, and Specifications	Year/Record	Pipe made at different times and specifications perform differently
3	Pipe Material, Manufacturing Class, Wall Thickness, Wire Type, Others	Type/Class/Inches	Pipe material and other manufacturing parameters affect performance
4	Pipe Diameter (internal, external, nominal pipe size)	Inches	Different pipe sizes perform and fail differently
5	Pipe Lining (type, material, installation year)	Type/Year	Type and specification of lining affect the performance of pipe
6	Pipe Coating (type, material, installation year, bonded or unbonded)	Type/Year	Coating of pipe will have affect on the performance
7	Pipe Hydraulics (flow type, flow rate, pressure)	Type, Ft/Sec, PSI	Pipe hydraulics may affect the performance deterioration rate
8	Break/Leak/Repair event (type, date, location, cause, length of service outage)	Type/Date/ID/Location	Number of pipeline failures will be used to analyze the performance of different types of metallic pipe
9	Soil Characteristics (type, resistivity, pH, chloride, sulphide, corrosivity)	Type/ Ω - cm/pH/Level	Soil may be corrosive or contain solvents that cause pipe deterioration
10	Corrosion Mitigation (type, continuous, limits, installation, condition)	Type/Year/Grade	Use of corrosion mitigation system will affect corrosion rate
11	Internal Water Parameters (type, quality, pH, chloride, sulphide, temperature, other)	Type/pH/Level/°F	Water properties may affect the internal condition of pipe
12	Pipe Joint, Bedding and Backfill (type, material, method)	Type/Material/Method	Improper joint, bedding or backfill materials may cause failure
13	Environmental Factors (frost penetration, ground water, tidal influences)	Yes/No, Level	Various external environments affect pipe performance
14	Operation and Maintenance Factors (stray currents, dissimilar materials, others)	Type, Yes/No	Presence of stray currents or dissimilar metals may cause corrosion
15	Pipe Characteristics (accessibility, redundancy, location, conservation zones)	Type, Yes/No	Characteristics of pipe affecting the ease of maintenance and renewal
16	Pipe Depth, Ground Cover, and Loading	Feet/Type/Gradient/ADT	Pipe depth and ground cover affect pipe loading and deterioration rate
17	Pipe Condition Monitoring System (type, installation year)	Type/Year	Presence of condition monitoring system may affect the pipeline's service life
18	Inspection Records (type, reason, technology, date, defects, deposit, etc.)	Type/Date/Location/Level	Inspection records may provide additional information about pipeline failures including cause
19	Renewal (repair/rehabilitation/replacement records)	Records	Renewal events may indicate pipeline failures
20	Third Party Damage (other utility failure, construction, tapping)	Yes/No, Type	If any damage is caused to pipe due to third parties
21	Life Cycle Costs		Life cycle costs needed for economic data analysis
	a. Initial Costs (design, easements, permits, right-of-way)	\$	All costs incurred before installation
	b. Installation Costs (equipment, material, labor, insurance, traffic, others)	\$	Costs incurred in the installation of the pipe
	c. Operation & Maintenance Costs (condition assessment, maintenance activities)	\$	Costs incurred in the operation and maintenance of pipe
	d. Renewal Engineering Costs (repair, rehabilitation and replacement activities)	\$	Costs incurred in performing renewal activities
	e. Consequence of Failure Costs (economic, environmental, social)	\$	Costs associated with impact of failure
22	<i>Please upload readily available pipe performance data in preferable formats</i>	<i>GIS, Access, Excel, etc.</i>	Utility may have additional data and information for analysis

Description of need for the parameters in the Table:

Numbers 1 to 8 are needed to determine the pipeline physical/structural parameters.

Numbers 9 to 14 are needed to determine the pipeline environmental/operational characteristics.

Numbers 15 to 18 are needed to determine the pipeline condition/assessment characteristics.

Numbers 19 – 20 are needed to determine the repair/rehab/replacement characteristics.

Number 21 (a to e) is needed to determine the pipeline life cycle economic/cost characteristics.

Number 22 is needed so that data saved in widely used electronic formats will be uploaded if easily available to the pipe utility

- 3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses, and the basis for the decision for adopting this means of collection. Also describe any consideration of using information technology to reduce burden and specifically how this collection meets GPEA requirements.**

An online data collection site will be developed and used to collect data from water utilities across the country.

- 4. Describe efforts to identify duplication. Show specifically why any similar information already available cannot be used or modified for use for the purposes described in Item 2 above.**

Reclamation has been asked to collect buried water pipe performance data. The primary concern is that the existing data cannot be modified and must be supplemented due to high variability in environmental corrosivity that cannot be anticipated or calculated using existing models. Also, similar information already available through a similar study conducted in 1994 cannot be used because that data is now considered outdated and incomplete. Additionally, there are concerns that the currently available data may result in Reclamation applying different standards of reliability to different materials and potentially increasing project costs unnecessarily. No other Federal Agencies or outside sources have maintained a comprehensive database related to water pipeline performance.

- 5. If the collection of information impacts small businesses or other small entities, describe any methods used to minimize burden.**

There are no impacts on small businesses or other small entities. Respondents by definition are not small business as defined by the Small Business Association. The information is being collected from large utility providers across the country.

- 6. Describe the consequence to Federal program or policy activities if the collection is not conducted or is conducted less frequently, as well as any technical or legal obstacles to reducing burden.**

In the absence of this information collection, Reclamation will not be in compliance with Congressional direction and recommendations from the National Academy of Sciences (NAS). Lack of data will also constrain the utility of the existing or potentially updated TM

received on cost and hour burden.

From 2013 through 2015, Reclamation worked with the Water Research Foundation and Battelle Memorial Institute (Battelle) on a draft information collection request (ICR) to collect high-quality field performance data on pipeline reliability for water pipelines of different material and vintage. A Federal Register notice announcing the availability of this draft collection of this information was initiated on February 26, 2014 (79 FR 10842), offering the public a 60-day public comment period. A summary of comments received during this 60-day comment period, disposition of comments, and revised draft information collection were published in the Federal Register on October 1, 2014 (79 FR 59291), and the public comment period was reopened for another 30 days. In response to the public's request for additional time to comment, a third notice was published in the Federal Register on October 30, 2014 (79 FR 64622), extending the comment period another 30 days. In total, the public was provided 120 days to comment on the draft ICR. Also at the public's request, all draft supporting documents were made available to the public for consideration. Unfortunately, the contract between Reclamation and its partners was terminated in July 2015 before the ICR could be finalized.

In November 2015, Reclamation signed an agreement with Virginia Tech to develop a new ICR to collect buried water pipe performance data. This ICR was published in the Federal Register on July 14, 2016 (81 FR 45533) to start the 60-day public comment period. Information developed from Reclamation's earlier attempt to develop an ICR to collect pipeline reliability data was incorporated into this current ICR.

For completeness of record, past comments received on the old (Battelle) ICR and responses to those comments are provided below ahead of our responses to comments received on the current (Virginia Tech) ICR and the disposition of those comments.

Comments on Federal Register Notice published February 26, 2014 (79 FR 10842).

(Note: The text below was published in the Federal Register on October 1, 2014 (79 FR 59291))

General Comments and Responses

Comment: Nonprofit organizations, such as the American Water Works Association, routinely conduct surveys and other studies. For these studies, the organizations generally protect the underlying data from public disclosure if the entity providing the data wishes to keep the data private (absent a legal action or other extraordinary circumstance). The survey instrument recognizes this issue and concern: "Privacy: Your name and facility name will not appear in our results. Access to documents and electronic files is restricted to the research staffs at Battelle, the Water Research Foundation, and the Bureau of Reclamation, who are working on the study." However, there is a possibility that a request for the data could be made under the Freedom of Information Act.

Response: *Access to documents and electronic files is restricted to the research staffs at Battelle, the Water Research Foundation, and the Bureau of Reclamation. Prior to sharing this data with the Water Research Foundation and the Bureau of Reclamation, Battelle will substitute unique identifiers for specific facility names to protect privacy should a request for data be made under the Freedom of Information Act. The information collection instrument has been revised*

accordingly.

Comment: The stated expected completion time of “up to 60 minutes” seems insufficient, especially for large utilities that may have numerous breaks to report and/or may require significant manipulation of their internal datasets to report the information as requested.

Response: *This estimate is based on discussions with large utilities. The language has been updated so that 60 minutes is clarified to be an estimate, not a maximum.*

Comment: It is important for the sample methodology to be available for comment. The survey and accompanying documents do not answer: (1) Which entities will be contacted; (2) how they will be selected; (3) what is the goal sample mix of respondents; or, (4) who within an entity will be contacted? These and other sampling issues are very important issues that warrant public notice and comment.

Response: *Selection is documented in Supporting Statement B. All large water utilities will be contacted.*

Comment: The survey should clearly indicate the type of pipe materials the survey covers.

Response: *The survey has been altered to clarify the types of pipe materials covered.*

Comment: If the survey considers distribution pipelines, the survey should divide the pipelines based upon pipelines that are: 12” (distribution), and 14+” in diameter (transmission), rather than using 12” as the dividing line between distribution and transmission pipelines.

Response: *The survey does not define 12” and below as distribution lines and 14” and above as transmission lines. We recommend staying with small less than 12” and large greater than 12”, which can be argued as well, but the data can be sorted.*

Comment: The survey should provide a mechanism for respondents to answer whether they are satisfied with a particular pipe material/method of corrosion protection.

Response: *This data is not necessary for the study.*

Comment: Question B1.b. of the survey instrument would be more accurate as “Pipe Segment Identifier.”

Response: *This change has been incorporated.*

Comment: Question A6 of the survey instrument: To allow for better segmentation and balancing of the eventual utility sample after collection, States should be listed individually in the drop down menu in alphabetical order rather than in predetermined regions.

Response: *The drop down menu has been updated to incorporate this change.*

Comment: Question B1.d. of the survey instrument: Pipe manufacturer is data that is not gathered in many cases.

Response: This data could help identify differences in pipes of the same type. This data will not be required to participate.

Comment: While the supporting documents outline specifics of the survey instrument in detail, it was difficult to find similar clarity in the specifics of the sampling plan for the study. The selection of utilities to include in the database can introduce significant response bias if important factors such as installation, maintenance and soil conditions are not adequately understood and balanced in the database.

Response: Selection is documented in Supporting Statement B. Bias will be limited by requesting data from all large water utilities.

Comment: The survey does not seem to provide a framework for respondents to provide uniform and consistent information. Based on the examples provided, if a respondent has data that meets a certain threshold, it can then upload the data in any manner that it would like. Without a method to ensure uniformity in response, the data will vary greatly.

Response: We allow this to encourage more responses and Battelle will standardize the data.

Technical Comments and Responses

Comment: Question B1.i of the survey instrument: Resistivity is useful for corrosivity, while pH and acidity are essentially the same and never a significant factor for corrosion.

Response: We will gather all data identified in the survey instrument if available. Soil pH is a significant corrosion consideration and therefore will be included in the survey instrument.

Comment: Question B1.i. of the survey instrument: It will be critical to specify in advance the soil corrosivity data requested in the survey will be for the specific soils around the breakage, and not a general soil corrosivity profile throughout a given utility's service area. Generalized regional soil information may not provide adequate understanding of the causal factors in pipe breakage if a utility has a wide variety of soils present in its service area.

Response: This question has been updated to request specific soil data near the break.

Comment: Data Collection: Unless all of the data is collected only from drinking water, it is critical to provide a column to specify the liquid(s) being transported within the pipe (e.g. raw water, treated water, storm water, sewage, etc.) to understand the internal reactions that might be occurring between the liquid and the interior of the pipe.

Response: A question has been added concerning quality of conveyed water (potable or non-potable).

Comment: "Break Type:" definitions should be provided so that respondents across different

utilities are reporting the same types of breaks in the same manner. This may require sub-categories including location of break (mid-pipe, at joint, etc.). As the debate over allowable break frequency or pipe service life ensues, understanding what types of breaks will likely be critical to assessing performance standards. Additionally, the types of breaks occurring may help point to installation issues or other causal factors that are not inherent to the types of pipe as well as help assess the adequacy of various protection and maintenance methods (such as corrosion control).

Response: *A question about location has been added to the survey.*

Comment: Causal information regarding breaks is critical, and should be added to the data required for participation and requested from eventual utility participants. Forensic understanding such as the type(s) of causal factors likely involved in the break is important to understanding the role of the material in the failure. If causal factor data are not available in a utility's database, they should be excluded from the sample due to this insufficiency.

Response: *This question is included in the survey. While we agree this piece of information is important, we expect many utilities may not document the causes. Because this column will be in our database, we will be able to compare data sets with and without this data. We are not planning to exclude utilities that do not have this data.*

Comment: It would be beneficial to better understand causal factors in breakage to also be able to cross-reference other site conditions that can significantly contribute to breakage such as the presence of stray current (nearby light rail operations or other stray current sources), bury depth and/or exposure, roadway or other surface traffic conditions that would lead to cyclic stress, presence of fixture restraint to compensate for hammering and surges, and pipe installation (such as if a water transmission line is installed within a crossing through a larger sewer or storm water pipe).

Response: *Some of these factors will be difficult to collect for many breaks events. While these data could be important, we do not want to require all of them for fear it would create an undue burden on the respondent. Burial depth has been added to the survey.*

Comment: Installation and maintenance capabilities and practices are likely key variables in the relative pipe breakage experience between utilities. It is easy to imagine significant sample bias if, for instance, utilities that predominantly use one type of pipe have poorer installation skills or maintenance programs than utilities that predominantly use a different type of pipe. Great care in balancing the utility sample base will be necessary, as well as perhaps standardizing and normalization of the resulting data base post collection.

Response: *While this could be true, it will be difficult to evaluate as these practices change over time. The data accuracy of the response would be based not only on the knowledge of the utility respondent, but also on the respondent history with its utility, which could vary greatly.*

Comment: "The Bureau of Reclamation has obtained the services of an outside to survey water facilities and collect water data on water pipeline corrosion related failures. The information

requested is required to comply with a request from Congress for the Bureau of Reclamation to assemble data on pipeline reliability for specific types of pipes.” The following questions pertain to the statement above:

1. Which entity?
2. Just facilities or also water professionals, such as engineers?
3. What type of data?
4. Internal corrosion, external corrosion or both? How do you define and quantify a corrosion related failure? By percentage cause or other method?
5. How do you define a failure?

Response: *Supporting Statements A and B have been revised and clarified to address these questions.*

Comment: While the notice focuses on failures, the survey asks for break/leak information – a leak appears to be very different from a failure, and a break could be different than a failure.

Response: *Breaks and leaks are the focus of the survey. Failure is equivalent to a break and leaks may lead to breaks/failures. Examples of break/leak type have been added to the information collection documents.*

Comment: The survey does not seem to limit the pipe materials surveyed. “If it is determined that you have high-quality water pipeline performance data, we will email you, which will allow you to upload that data in any format you choose.” The following questions and comments pertain to the statement above:

1. Who will determine if the data is high quality?
2. This would seem to make it very difficult, if not impossible, to standardize the content of the data provided.

Response: *The purpose of the data collection, “to collect high-quality field data on the performance of water pipelines of different materials,” is clearly noted in the information collection instrument. Battelle will make the determination on data quality and will standardize the data provided.*

Comment: The Bureau of Reclamation indicates that it is only concerned with failures that require a pipeline to be taken out of service. If the Bureau of Reclamation’s standard is used, the survey should require respondents to answer whether the leak/failure required the pipeline to be taken out of service. The Bureau of Reclamation has used a subset of the Department of Transportation oil and gas data instead of the dataset including all failures, lending further credence to this approach. Under this scenario, any failure that does not lead to a disruption in service is irrelevant.

Response: *A question has been added to the survey concerning the duration of service interruption caused by the break/leak.*

Comment: The survey should eliminate past leaks/breaks/failures that are not likely to occur now or in the future. There are numerous factors that could explain these past failures,

including, but not limited to:

- Installation errors.
- Maintenance issues.
- Old technologies, such as leadite joints or lead caulked joints.
- Practices that have been modified so that the leak/break/failure would not occur now.

Response: *This would be nearly impossible to eliminate. By collecting this data and documenting any known shifts in materials or practices, the failure rates will carry more value.*

Comment: The survey needs to define key terms and provide options for respondents to select certain types of breaks so that there is some uniformity. It is important for “corrosion-related” leaks/breaks/failures to be defined to understand how the survey will evaluate the information. Multiple factors may be the cause of a particular failure, and the survey should provide a method to identify and rank the relative importance of concurrent causes of a leak or failure. This is especially important when dealing with potential corrosion-related problems where installation, maintenance or other issues may be the actual cause of the problem. When dealing with labeling failures, it is important that there are checks in place on the front and back ends of the survey. This is often challenging because many utility records are not complete enough to capture this information. This is particularly important in potential corrosion-related failures where installation, maintenance or other factors may be the cause of a corrosion-related failure. These factors include, but are not limited to:

- Installation problems with the pipe and/or corrosion protection.
- Soil type and/or soil conditions in specific areas of a pipe line.
- Environmental conditions.
- Frost depth, etc.
- Other contributing factors (road reconstruction may create impacts).

Response: *The question on break/leak type has been clarified to address this comment.*

Comment: The survey should capture whether the utility has provided specific training to categorize the cause of the failure, conducts forensic evaluations, maintains forensic records and other issues to ensure accurate reporting.

Response: *This will be evident by the utility responses to the current questions.*

Comment: It is also important for there to be checks on the type of pipe and corrosion protection reported.

Response: *Battelle has a quality assurance/quality check process in place to check data from respondents.*

Comment: It is especially important that cast iron pipe failures are not inaccurately described as ductile iron pipe failures.

Response: *Battelle has a quality assurance/quality check process in place to check data from respondents.*

Comments on Federal Register Notices published October 1, 2014 and October 30, 2014, (79 FR 59291) and (79 FR 64622), respectively.

Summarized below are responses to comments received during the two supplemental 30-day public comment periods on the old (Battelle) ICR. Comments were received from Mann Consulting, Inc., and the Ductile Iron Pipe Research Association regarding this information collection.

Comment: The importance of understanding the type of failure to the eventual utility of the analysis cannot be overstated. B1m is currently labeled “Break/Leak Type.” Mann’s understanding from the field is those close to operations see breaks and leaks as very different events, and these need to be tabulated and classified separately.

Response: *The terminology has been updated to say Repair Event rather than Break/Leak/Failure.*

Comment: Terminology is absolutely critical to the analysis of the subject pipe technologies. Terms in both the types of breaks and leaks (separate and specific to either breaks and leaks) and causal factors (separate and specific to either breaks and leaks) need to be specified more completely in the review process so those reviewing this study can make adequate input. At this juncture, the level of specificity of terms available for comment is insufficient to draw firm conclusions as to their appropriateness. Mann would suggest two remedies:

1. If it has not already been done, develop terminology with field operations personnel and/or those persons from utilities who are expected to be tasked with completing the survey. If terms used in the survey are ambiguous, confusing or unknown to those completing the survey, or if the terminology is not consistent or translatable to utility’s internal terminology, the data collected will be substantially useless.
2. During data collection, survey takers should be provided with an option to link to more explicit descriptions of the examples in both these questions to provide for consistency in reporting critical to the underlying analysis. And upon completion of the data collection, those analyzing the database should perform an audit to confirm or refute that the classifications were used consistently across responding utilities, and that the classifications used represent the actual failure event as accurately as possible given the utilities’ available records.

Response: *The terminology has been updated to say Repair Event rather than Break/Leak/Failure.*

Comment: Further regarding B1m, the examples currently given in parentheses following the title “Break Type” (specifically, “construction defect, corrosion, settlement, frost heave, etc.”) seem to be causal factors and not descriptors of failure types. Ideally, these improper examples of breaks and leaks would be replaced by terms developed in the process described above.

Response: *The terminology has been updated to say Repair Event rather than Break/Leak/Failure. The example Repair Event Type has been updated (e.g., circumferential break/crack, longitudinal break/crack, blowout, bell fracture, shear failure, corrosion/pitting,*

wire breaks, leaks, etc.).

Comment: Following the split Breaks and Leaks B1m, there should be an additional question titled “Cause of failure” which would then use terms similarly developed in the process described above.

Response: *A new B1n has been added called Repair Event Cause (e.g., construction defect, corrosion, bedding/settlement, frost heave, pressure, etc.).*

Comment: Categorically, information regarding pipe failure without notation of causal factors is of very limited value to drawing sound conclusions about pipe performance, and instead of providing clarity and sound direction will likely contribute to misleading or spurious conclusions. For example, as industry practices improve with experience, failures due to improper or insufficient installation practices might be eliminated or substantially reduced as these failures of practice are identified and better understood. The intrinsic value of a particular pipe technology would be unnecessarily clouded by past insufficient and improper installation and maintenance practices that may have long been remedied. Failures due to these remedied practices should be factored out of the analysis of the underlying voracity of the pipe technology.

Response: *This statement is directed at the data analysis and not data collection. The assembled data should permit the ability to analyze the data from many different perspectives so that a single conclusion is not broadly applied to a pipe material.*

Comment: In the comment that immediately follows (also regarding causal factors), the response is, “Some of these factors will be difficult to collect for many break events. While these data could be important, we do not want to require all of them for fear it would create an undue burden on the respondent. Burial depth has been added to the survey.” With respect to undue burden, the critical nature of this analysis and the potential for the findings to affect billions of dollars in infrastructure investments in the broad water utility sector for generations to come seems to warrant imposition on utilities for this causal data of acknowledged importance. Perhaps the undue burden is actually having utilities without causal factors noted in their database participate in the first place. Their efforts will not contribute importantly to a sound scientific understanding of the technology. Worse, the presence of data without well-defined and well-understood definitions and causal factors will undermine the scientific foundation of any conclusions derived from this inadequate data. The presence of incomplete information is not necessarily better than the absence of incomplete data in the analysis.

Response: *The minimum data required to have the data upload instructions sent to a utility have been updated to include: B1a (Pipe Material); B1b (Pipe Segment Identifier (length)); B1c (Pipe Installation Date); B1e (Pipe Diameter); B1l (Repair Event Date); B1m (Repair Event Type); and B1n (Repair Event Cause).*

SUPPORTING STATEMENT A Comments

Comment: 2.B4 (page 5): Minimum standards for utility participation are set forth in this statement to be the following (referencing 2.B1): a. Pipe Material; b. Pipe Installation date; c.

Pipe Condition Monitoring System and Year Installed.

These three criteria seem quite inadequate to allow for even crude analysis of the complex science of pipe technology performance in question. This list of minimum criteria for participation should be expanded to include not only more of the forensic information included in other data items listed in 2.B, but also include additional forensic information that is pertinent to understanding true causal factors not currently addressed in 2.B1. Without more robust minimum criteria, the validity and utility of this survey are highly questionable.

Response: *The minimum data required to have the data upload instructions sent to a utility have been updated to include: B1a (Pipe Material); B1b (Pipe Segment Identifier (length)); B1c (Pipe Installation Date); B1e (Pipe Diameter); B1l (Repair Event Date); B1m (Repair Event Type); and B1n (Repair Event Cause).*

Comment: 7.f. (page 7): It is imperative the collection instrument has clearly defined and consistent terminology for breaks, leaks, and causal factors that are understood by those persons at utilities tasked with completing the data transfer. Further, this terminology must be clear and consistent with the terminology used in the subject utilities' databases such that a person completing the collection instrument is transferring breakage, leakage, and causal factor data that accurately represent events recorded in their databases. The person providing the data for this study may or may not be a subject matter expert, and may therefore not be able to different definitions and terminology used in the survey instrument. Given this potential for incorrect translation, the program to analyze the utility data should include an audit of a subsample of utilities to understand the accuracy with which the true life experiences are being portrayed in the data collected by the survey instrument. Without clear and consistent terminology, the opportunity to misreport events of one nature as something substantially different is too significant to ignore. Best practices suggest that Battelle should clear up any differences or ambiguity in terminology, especially for breaks, leaks, and causal factors prior to deploying the survey instrument for data collection. And then upon completion of the data gathering, Battelle should audit a sample of data gathered to be sure what is transferred to the database for analysis accurately represents real world experience.

Response: *The terminology has been updated to say Repair Event rather than Break/Leak/Failure. Examples of Repair Event Types and Causes have been added where appropriate.*

Comment: 16. (page 17): To be in compliance with the stated requirement "Address any complex analytical techniques that will be used" Battelle must come forward with a plan that addresses how they will deal with incomplete data. As currently constructed, the project will allow for data collection from utilities that do not have complete data regarding failure types and causal factors. The manner in which Battelle proposes to use incomplete data in their analysis is critical to understanding the validity of their work. Mann stated in the past that the lack of clear and understood causal factor data should disqualify utilities from having the rest of their incomplete data included in the analysis. It is a waste of the utilities' time and, if misused, the incomplete data can result in misleading findings and conclusions.

Response: *The minimum data required to have the data upload instructions sent to a utility*

have been updated to include: B1a (Pipe Material); B1b (Pipe Segment Identifier (length)); B1c (Pipe Installation Date); B1e (Pipe Diameter); B1l (Repair Event Date); B1m (Repair Event Type); and B1n (Repair Event Cause). The other aspect of this statement is directed at the data analysis and not data collection. The assembled data should permit the ability to analyze the data from many different perspectives so that a single conclusion is not broadly applied to a pipe material.

SUPPORTING STATEMENT B COMMENTS:

Comment: 1 (page 1) and 2b (page 2): The advance review of Battelle’s proposed analysis and statistical treatment of the non-representative sample base proposed in this study is critical to understanding the value and validity of Battelle’s work.

Response: *The current effort is to obtain data. The second effort is to analyze the data. This statement appears to be directed more at the data analysis and not data collection.*

Comment: The sample universe includes Federal water facilities and larger/very large water utilities. While this sampling strategy seems convenient, this sample pool is likely not representative of the universe of utilities and water facilities as a whole. Given the estimates cited in Table 2-1 “Number of Utilities and Facilities” there will be a substantial overrepresentation of Federal water facilities. With 92 of 250 Federal water facilities expected to report versus 68 of 418 water utilities expected to report, Federal water facilities will represent 57.5% of the reporting entities while they represent only 37.4% of the universe of entities invited to participate. That alone significantly skews the response in a substantial manner.

Response: *These are only estimates. The actual number of respondents with minimum data required will not be known until the initial survey is sent out.*

Comment: In reference to a comment resolution included in the October 1, 2014 Federal Register notice (79 FR 59293), regarding internal corrosion, external corrosion, or both, how do you define and quantify a corrosion related failure? By percentage cause or other method?” While the Response states, “Supporting Statements A and B have been revised and clarified to address these questions,” Mann saw no detail regarding corrosion that adequately addressed the questions. Given the importance of corrosion in the understanding of pipe failure, this lack of clarification is concerning.

Response: *The terminology has been updated to say Repair Event.*

Comment: The current study as proposed is limited to understanding the failure rates of various pipe technologies. But failure rates are only a portion of the consideration for the best overall choice of pipe technology. To better serve the public and the water industry, it would seem prudent to expand the scope of the study under consideration to assess the total life cycle economics of the subject pipe technologies. Other important factors include initial costs of purchase and installation, maintenance, repair costs and losses due to downtime, and ultimate life expectancy.

Response: Reclamation will contract the economic, cost-effectiveness, and life cycle cost analyses of the data collected from this effort to an appropriate independent third-party. The focus of these analyses will be on pipe materials listed in Table 2 of the TM plus prestressed concrete pipe.

Comment: Reclamation failed to address all of the comments submitted on April 28, 2014.

Response: Reclamation, WaterRF, and Battelle reviewed the comments received from DIPRA on April 28, 2014 and restricted their published Federal Register responses to comments that were focused on the subject collection of data effort.

Comment: DIPRA does not understand why Supporting Statements A and B were not provided in the materials released in February 2014.

Response: Supporting Statements A and B are internal documents developed to facilitate the OMB approval process for ICRs and are not normally shared with the public during the public review stage of collection instruments. The entire ICR package (including Supporting Statements) will be available to the public for a final 30-day comment period, with comments being directed to OMB.

Comment: Which pipe materials are being surveyed?

Response: The initial agreement between Reclamation and WaterRF limited the data collection effort to the pipe materials listed in Table 2 of the TM plus prestressed concrete cylinder pipe. During the WaterRF proposal process to select an entity to collect the data, the scope of pipe materials was expanded. Pipe materials include cast iron pipe; ductile iron pipe; pretensioned concrete pipe; reinforced concrete pipe; prestressed concrete cylinder pipe; asbestos cement pipe; steel pipe; and thermoplastic pipes (e.g., polyvinyl chloride and polyethylene).

Comment: What is the selection process for utilities and how does the compilation account for differences in practices and conditions among the utilities?

Response: Item 2b of Supporting Statement B addresses this. Electronic surveys will be sent to all large and very large utilities and Federal facilities. The second part of the statement appears to be directed more at the data analysis and not data collection. The assembled data will permit the ability to analyze the data from many different perspectives so that a single conclusion is not broadly applied to a pipe material.

Comment: How are key terms defined, such as a corrosion-related failure?

Response: The terminology has been updated in the survey to say Repair Event rather than Break/Leak/Failure.

Comment: What is the performance standard that Reclamation seeks to achieve?

Response: This data collection effort is intended to provide practical, achievable, and

comparable levels of reliability on a variety of pipelines and corrosion mitigation systems. Reclamation will evaluate the collected data, calculated failure rates, and subsequent life cycle costs to inform its decision on a suitable reliability standard (upper bound of an acceptable probability of failure) which balances practical considerations (e.g. actual/achievable pipe performance and life cycle cost considerations) with a project's risk tolerance.

Comment: Who is doing which parts of the study, as Reclamation, the WaterRF, and Battelle each have an undefined role in the study?

Response: *Reclamation signed an agreement with WaterRF to assemble data on pipeline reliability along with the specified corrosion protection applied in various soil types. The bulk of the data collection effort and analysis will be performed by Battelle. Reclamation is the sponsoring agency for obtaining OMB approval in compliance with the Paperwork Reduction Act.*

Comment: How is Reclamation going to evaluate economic information, as required by Congress, when it does not ask for any economic-related information in the survey?

Response: *The scope of this data collection effort is to assemble pipeline repair event data applied to various pipes in various soil types. Reclamation will evaluate economic information by developing a separate contract that targets economic, cost-effectiveness, and life cycle cost analyses by an appropriate independent third-party.*

Comment: Reclamation did not address comments related to "Whether the proposed collection of information is necessary for the proper performance of our functions, including whether the information will have practical use. DIPRA provided extensive information about why Reclamation has sufficient information to allow the use of ductile iron pipe with polyethylene encasement in all soil environments, thereby alleviating the need for a study of the performance of ductile iron pipe.

Response: *Reclamation is responding to a recommendation from the 2009 NAS Study and Congressional direction received from Fiscal Year 2012 onwards.*

Comment: Reclamation has proposed to survey "[a]ll large water utilities" but failed to address the discussion of the American Water Works Association's (AWWA) recent Buried No Longer report. Many, if not all, of the utilities that Reclamation proposes to survey are members of AWWA, and many likely participated in AWWA's survey.

Response: *Reclamation is responding to a recommendation from the 2009 NAS Study and Congressional direction received from Fiscal Year 2012 onwards.*

Comment: Would the survey have practical use given Reclamation's involvement. It is important for Reclamation to address those comments publicly so that potential survey respondents can determine how the data they provide will be used.

Response: *Reclamation is responding to a recommendation from the 2009 NAS Study and*

Congressional direction received from Fiscal Year 2012 onwards.

Comment: Reclamation addressed a comment regarding the use of 12-inch pipe as the delineation between large and small pipes, and indicated that the survey does not define transmission versus distribution lines. Putting aside our initial comments, Reclamation ignored an important second point - the pipe materials surveyed are an important factor to determine which pipe sizes to include in the survey. If the survey focuses on metallic pipes, the survey should not gather data on distribution pipes, as information would be reported for ductile iron pipe but not steel and concrete pipes. The result would be to gather data that would seem to be irrelevant for the performance comparisons in this study.

Response: *This study is being co-funded by Reclamation and WaterRF. While Reclamation's pipe tend to be large diameter, the inclusion of smaller diameter pipe would benefit WaterRF. The database is planned to be easily searchable to assemble pipes of differing diameters and materials for future analyses.*

Comment: DIPRA believes that the data deemed relevant and the standards that are applied are constantly changing - requiring the recusal of Reclamation and crystal clear definitions and standards on the front end of this process.

Response: *Reclamation is responding to a recommendation from the 2009 NAS Study and Congressional direction received from Fiscal Year 2012 onwards. The terminology has been updated to say Repair Event rather than Break/Leak/Failure. The minimum data required to have the data upload instructions sent to a utility have been updated to include: B1a (Pipe Material); B1b (Pipe Segment Identifier (length)); B1c (Pipe Installation Date); B1e (Pipe Diameter); B1l (Repair Event Date); B1m (Repair Event Type); and B1n (Repair Event Cause).*

Comment: Reclamation has continued to provide unclear definitions that are not used consistently.

Response: *The terminology has been updated to say Repair Event rather than Break/Leak/Failure.*

Comment: The survey asks for "Break/Leak Date" but does not mention failures. The use of the terms together implies the terms break and leak are interchangeable. The survey then asks for "Break Location" with no mention of leaks or failures. This demonstrates why clear definitions and standards of performance and evaluation need to be provided, why respondents need to be able to provide their own standards and why respondents need to evaluate the standards once they are agreed upon.

Response: *The terminology has been updated to say Repair Event rather than Break/Leak/Failure.*

Comment: The survey still does not allow for the identification and ranking of concurrent causes of failures/breaks/leaks. Combined with the refusal to eliminate problems that occurred in the past but would not occur now or in the future, this study appears destined to provide inaccurate information about the performance expectations of properly installed and

maintained pipe materials, which should be the goal of a study such as this.

Response: *This statement is directed at the data analysis and not data collection. The assembled data should permit the ability to analyze the data from many different perspectives so that a single conclusion is not broadly applied to a pipe material.*

Comment: Even if Reclamation responded to the prior comments and provided the information required to evaluate the revised Notice, the proposed 30-day comment period is not sufficient time for meaningful comments. Since a 60-day comment period was provided initially, it is important to provide the same comment period for the revised Notice.

Response: *The initial 60-day review is required by the Paperwork Reduction Act. The second public review was requested by Reclamation in an effort to accommodate requests associated with this data collection effort and be responsiveness to the ductile iron pipe industry's concerns. The second public review was extended to 60 days at the request of Congressman Aderholt. In total, the public was provided 120 days to comment on this ICR. The next public comment period will be for 30-days and will be posted by OMB.*

Comment: It does not appear that Reclamation intends to make Supporting Statements A and B available to the public until after they are submitted to OMB. We believe that the critical information contained in these documents is important for the public's review and comment and should have appeared in the initial/subsequent notices and should be publicly available.

Response: *Draft Supporting Statements A and B were shared with the public and DIPRA on October 30, 2014.*

Comment: Supporting Statement A indicates that this study will exceed the scope of the study as outlined in Congressional language and in previously available public documents. Those documents indicated that Reclamation's study would be limited to the pipe materials found in Table 2 of the TM. On page 17 of Supporting Statement A, however, Reclamation indicates that the study will include pipe materials not included in Table 2 of the TM.

Response: *In March 2012, Reclamation entered into a cooperative agreement with the WaterRF to collect buried metallic pipeline reliability data for all types of pipe specified in Table 2 of the TM and prestressed concrete pipe. The majority of the data collection and analysis work to be completed under the agreement will be done by a sub-recipient to WaterRF and Battelle. Battelle's agreement with WaterRF includes: cast iron pipe; ductile iron pipe; pretensioned concrete pipe; reinforced concrete pipe; prestressed concrete cylinder pipe; asbestos cement pipe; steel pipe; and thermoplastic pipes (e.g., polyvinyl chloride and polyethylene). In our opinion, the inclusion of pipe materials beyond those noted in Table 2 of the TM does not have a significant effect on the cost of the study and could provide valuable information to both WaterRF and Reclamation in the future.*

Comment: In the Revised Notice dated October 1, 2014 (79 FR 59291), Reclamation summarized a comment and provided the following response:

Comment: "The Bureau of Reclamation has obtained the services of an outside [entity] to

survey water facilities and collect water data on water pipeline corrosion related failures. The information requested is required to comply with a request from Congress for the Bureau of Reclamation to assemble data on pipeline reliability for specific types of pipes." The following questions pertain to the statement above:

1. Which entity?
2. Just facilities or also water professionals, such as engineers?
3. What type of data?
4. Internal corrosion, external corrosion or both?
5. How do you define and quantify corrosion related failure? By percentage cause or other method?
6. How do you define a failure?

Response: Supporting Statements A and B have been revised and clarified to address these questions.

Supporting Statements A and B, however, do not include all of this information.

Response: *The terminology has been updated to say Repair Event rather than Break/Leak/Failure.*

Comment: How corrosion related failure will be defined and quantified must be established on the front end to ensure clear definitions and the submittal of consistent data. The absence of this and other information as discussed in prior comments undermines the effectiveness and validity of the study.

Response: *The terminology has been updated to say Repair Event rather than Break/Leak/Failure.*

Comment: In response to a question about the sample mix of respondents (and other questions), Reclamation stated: "Selection is documented in Supporting Statement B. All large water utilities will be contacted." A reasonable person reviewing this information would conclude that the focus of the survey/sample mix would be large water utilities. A review of Supporting Statement B indicates that the anticipated sample mix will be 92 Federal facilities compared to 68 water utilities. This is very different than the public information provided in the notice and another example of our concerns with incomplete/misleading information being provided to the public.

Response: *These are only estimates. The actual number of respondents with minimum data required will not be known until the initial survey is sent out.*

Comment: Supporting Statement B creates confusion, as it implies that the survey may not be limited to Federal facilities and large water utilities: "*Generally* respondents to this survey will be personnel working either for Federal water facilities and large water utilities." (emphasis added). Moreover, Reclamation does not define which Federal facilities would be covered, and this information is necessary for informed comments.

Response: *The actual respondents with minimum data required will not be known until the initial survey is sent out.*

Comment: The proposed higher percentage of participation from Reclamation facilities has the potential to distort the data in a number of ways. We also note that the proposed higher percentage of participation from Reclamation facilities has the potential to distort the data in a number of ways. Reclamation's TM has adopted corrosion control requirements that are out of the engineering mainstream in the United States and inconsistent with the standards of the AWWA. The TM has prohibited polyethylene encasement - the most prevalent corrosion control method for ductile iron pipe - in corrosive soils for more than 10 years. This practice will lead to an objectionable bias in the data.

Response: *These are only estimates. The actual number of respondents with minimum data required will not be known until the initial survey is sent out. The assembled data should permit the ability to analyze the data from many different perspectives so that a single conclusion is not broadly applied to a pipe material.*

Comment: DIPRA asked if there are other relevant studies that have been completed. DIPRA believes that the AWWA's Buried No Longer report is relevant and clearly demonstrates that ductile iron pipe can meet Reclamation's service life in all soil environments.

Response: *Reclamation is responding to a recommendation from the 2009 NAS Study and Congressional direction received from Fiscal Year 2012 onwards.*

Comment: Reclamation's response in Questions 2 and 6 of Supporting Statement A clearly stipulates that the TM is a requirement and Reclamation intends to use it as such, contrary to repeated assertions to Congress otherwise.

Response: *Development of Supporting Statement A was a joint effort by Reclamation, WaterRF, and Battelle. The text response for Question 6 will be revised to better reflect Reclamation's use of the TM as a guideline.*

Comment: In question B4 of Supporting Statement A (page 5), Reclamation states that the following data are sufficient/required for participation in the survey:

- Pipe Material
- Pipe installation date
- Pipe Condition Monitoring System and Year Installed

The requirement to have a Pipe Condition Monitoring System artificially limits the universe of respondents, as these systems are not prevalent in water pipelines. These three criteria are also insufficient to evaluate pipe performance, as causal factors and other vital information are excluded as minimum requirements.

Response: *The minimum data required to have the data upload instructions sent to a utility have been updated to include: B1a (Pipe Material); B1b (Pipe Segment Identifier (length)); B1c (Pipe Installation Date); B1e (Pipe Diameter); B1l (Repair Event Date); B1m (Repair Event Type); and B1n (Repair Event Cause).*

Comment: DIPRA has other concerns and objections but will wait until Reclamation addresses previous comments and provides all necessary information before devoting additional time and

resources to address incomplete information. As requested in DIPRA's comments dated October 30, 2014, a 60-day comment period is necessary after Reclamation provides the information discussed above.

Response: *The initial 60-day review is required by the Paperwork Reduction Act. The second public review was requested by Reclamation in an effort to accommodate requests associated with this data collection effort and be responsiveness to the ductile iron pipe industry's concerns. The second public review was extended to 60 days at the request of Congressman Aderholt. In total, the public was provided 120 days to comment on this ICR. The next public comment period will be for 30-days and will be posted by OMB.*

Comments on Federal Register Notice published July 14, 2016 (81 FR 45533).

Comments received on the current (Virginia Tech) ICR during the 60-day public comment period and responses to those comments are detailed below. Comments that are similar in nature are combined.

Comment: Appendix A. #18: "Inspection Records (Type, reason, technology, date, defects, deposit, etc.)." It is not clear to me this will allow tagging of failures related to inadequate or improper maintenance. It would be helpful to see the analytics of the pilot phase of the project to understand this further. It is imperative maintenance failures are not attributed to pipe technology, so this data needs to be able to provide that perspective.

Response: *In our opinion, Water Main break is a better understood term for physical pipe failure. We are capturing the characteristic breaks in Appendix A #8. This is a one-time collection effort (i.e., there is no pilot phase). The research team has not collected or analyzed any field data. After OMB approval, the collection of data for analysis will start. Data Analytics will then be performed and the results will be presented to reflect pipe failure characteristics.*

Comment: I highly recommend there be an additional data section related to installation assessment that can adequately control for installation irregularities.

Response: *Pipe installation parameters and other relevant information will be captured as described in Appendix A. We will incorporate pipe installation parameters into item numbers 12 and 16 in the pipe performance table since they already incorporate some installation data.*

Comment: Looking at Appendix A, it is not clear there will be data collected on an appropriate basis upon which to understand failure rates. For example, I do not see a category for a measure such as "Total Linear (unit of length)" for each type of pipe technology for which a utility is providing failure data. Is this being collected elsewhere?

Response: *Failure is a more general term that encompasses more than the specific types of failure we are looking for; it may be interpreted as physical or functional failures. We are only interested in physical failures for this information collection, thus the reason for capturing breaks, leaks, and repair events in Appendix A #8. Total linear (unit of length) is being captured as part of the response to #1 in Appendix A.*

Comment: We need to understand pipe technology failure rates. How was this handled in the pilot study? It would be of great benefit to be able to see more details of the analytical methods applied in the pilot study or anticipated in the more complete dataset.

Response: *There was no pilot study. We are in the process of gaining OMB approval. We have not collected or analyzed any field pipe performance data.*

Comment: It would be worth significant effort to avoid the over-representation of Federal utilities in the dataset. Is there any chance of offering even greater graduate assistant support to help boost non-Federal utility participation?

Response: *We will definitely make sure we have sufficient water utilities participation from all 10 U.S. EPA regions and we are planning to assign enough graduate students to help boost non-Federal utility participants. It is also important to note that most of what we consider “Federal” facilities are facilities that were constructed by Reclamation but are now owned and/or operated and maintained by water districts.*

Comment: In order to understand the voracity of various pipe technologies, it is additionally incumbent the sample include sufficient levels of experience with each type of pipe technology being evaluated. It is not sufficient to just have a robust number of utilities. It is necessary to have a sufficient base of pipe utilization (e.g., a minimum number of miles of each pipe technology) to be sure we can compare technology to technology.

Response: *Our goal is to collect enough data for different pipe materials to be statistically significant. After data collection we will evaluate whether the data is sufficient to establish a general understanding of the state of buried water pipeline infrastructure, its failure rates, and effectiveness of corrosion control measures for each pipe technology.*

Comment: It seems incumbent upon Virginia Tech to come forward with a clear and rigorous standard of minimum linear mileage for each pipe technology being evaluated by the expected major sub-factors.

Response: *This project will be broken up into two phases. Phase 1 will collect pipeline performance data; Phase 2 will collect any data missing from Phase 1 and then analyze the collected data with regard to life-cycle and other bases. At the end of Phase 1, Virginia Tech will provide a progress report to Reclamation. This report will include an evaluation of the data collection and analysis that defines methodology used to identify critical data, develop the collection technique, data mine, develop the database, and measure pipe reliability performance. The research report will also include a determination as to whether the data are sufficient to establish a statistically valid and basic understanding of the general state of buried water pipeline infrastructure and its failure rates in addition to an evaluation of the general effectiveness of corrosion control measures. The evaluation will be based on quality and reproducibility of data collected from Reclamation and water utilities. This will enable Reclamation to make an informed decision as to whether it is prudent and feasible to proceed*

with tasks identified under Phase 2. If it is determined that collected data cannot support a statistically valid database, this project will not proceed to Phase 2.

Comment: This is another example where disclosing the analytical methodology of the pilot study might help us all have an enlightened perspective on the statistical voracity of the data so we might know what to expect in terms of statistical rigor from the full up study.

Response: *We are not conducting a pilot study.*

Comment: I would suggest you modify the statement to substitute “blind” for “unique” to be sure potential respondents know the data they share will be blind to all but the Virginia Tech team.

Response: *“Unique Identifiers” will help Reclamation’s Project Manager to comment on a specific utility data set without knowing the identity of that particular utility. Using unique identifiers will prevent sensitive participant data from becoming public information via Freedom of Information Act requests.*

- a) **Describe efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported.**
- b) **Consultation with representatives of those from whom information is to be obtained or those who must compile records should occur at least once every three years — even if the collection of information activity is the same as in prior periods. There may be circumstances that may preclude consultation in a specific situation. These circumstances should be explained.**

Virginia Tech has consulted with water utilities in developing this information collection document to determine the types of data and formats each tracks and stores and to gauge the anticipated level of effort to complete this effort.

Virginia Tech consulted with outside parties who spent time going through the entire proposed data collection process. We expect variance in the amount of time required to collect data and complete the application due to differences at each water utility in the ease of access to the data we are requesting. We believe that a burden hour estimate of 1 hour and 50 minutes per application is a good assessment of the time required to complete the application and compile supporting documents. The table below lists the outside parties we contacted:

Respondent's title, organization, and location	Time to Complete Survey	Clarity of Instructions	Reporting Format and Data Availability
Asset Manager, Water Network, WSSC, Laurel, Maryland	170 minutes	Instructions were very good	Reporting format was easy and convenient
Assistant Director, Public Works, Town of Blacksburg, Virginia	125 minutes	Satisfactory	Good
Asset Manager, Western Virginia Water Authority, Virginia	155 minutes	Good	Very Good
Senior Assistant Director, City of Houston, Texas	135 minutes	Satisfactory	Good
Asset Manager, Tarrant Regional Water Authority, Texas	140 minutes	Very Good	Good
Town Manager, Town of Amherst, Virginia	170 minutes	Satisfactory	Very Good
Deputy Director, Seattle Public Utilities, Washington	145 minutes	Good	Satisfactory
Asset Manager, Anchorage Water and Wastewater Utility, Alaska	165 minutes	Very Good	Good
Asset Manager, City of Atlanta, Georgia	155 minutes	Good	Good

9. Explain any decision to provide any payment or gift to respondents, other than remuneration of contractors or grantees.

We will not provide any payment or gift to respondents.

10. Describe any assurance of confidentiality provided to respondents and the basis for the assurance in statute, regulation, or agency policy.

No Privacy Act information is being collected. All respondents will be assured that response to any or all questions are voluntary and that their name and facility name will not appear in our results. The research team will substitute unique identifiers for specific facility names prior to sharing with Reclamation.

11. Provide additional justification for any questions of a sensitive nature, such as sexual

behavior and attitudes, religious beliefs, and other matters that are commonly considered private. This justification should include the reasons why the agency considers the questions necessary; the specific uses to be made of the information, the explanation to be given to persons from whom the information is requested, and any steps to be taken to obtain their consent.

No sensitive information will be gathered.

12. Provide estimates of the hour burden of the collection of information. The statement should:

- a. Indicate the number of respondents, frequency of response, annual hour burden, and an explanation of how the burden was estimated. Unless directed to do so, agencies should not conduct special surveys to obtain information on which to base hour burden estimates. Consultation with a sample (fewer than 10) of potential respondents is desirable. If the hour burden on respondents is expected to vary widely because of differences in activity, size, or complexity, show the range of estimated hour burden, and explain the reasons for the variance. Generally, estimates should not include burden hours for customary and usual business practices.**

As shown in Table A. 12-1, we estimate the respondent burden to be 469 hours total time for all anticipated respondents (average of 150 minutes per respondent). We estimate there will be 165 respondents that will upload the data (8 private sector respondents and 157 state and local respondents). We expect that each potential respondent will take a maximum of 10 minutes to review emails that are sent (advance letter, survey email, and reminder email) to determine whether they want to participate. We estimate that the introductory webinar will take 30 minutes and will be held with each potential respondent. It will take about 110 minutes to complete and upload the requested data/information. We expect the respondents will be water utility and Federal facility pipe asset managers. We expect there will be approximately 50 responses from Federal facilities. "Federal" facilities are facilities that were constructed by Reclamation but are now owned and/or operated and maintained by water districts.

- b. If this request for approval covers more than one form, provide separate hour burden estimates for each form and aggregate the hour burdens.**

Total burden hours are shown in Table A. 12-1.

Table A. 12-1. Total Burden

Private Sector Respondents

Type of Form	(A) Estimated Number of Respondents	(B) Number of Responses per Respondent	(C) Avg. Burden per response (mins)	(E) Total Burden (hrs)
Participation Decision (emails)	25	1	10	4
Introductory Webinar	8	1	30	4
Data Upload	8	1	110	15
Total	41			23

State/Local Government Respondents

Type of Form	(A) Estimated Number of State/Local Respondents	(B) Number of Responses per Respondent	(C) Avg. Burden per response (mins)	(D) Total Burden (hrs)
Participation Decision (emails)	475	1	10	79
Introductory Webinar	157	1	30	79
Data Upload	157	1	110	288
Total	789			446

- c. **Provide estimates of annualized cost to respondents for the hour burdens for collections of information, identifying and using appropriate wage rate categories. The cost of contracting out or paying outside parties for information collection activities should not be included here. Instead, this cost should be included under “Annual Cost to Federal Government.”**

The annualized wage cost burden for the study is shown in Table A. 12-2. Average hourly wages were estimated based on previous partnerships Virginia Tech has formed with water utilities. When Virginia Tech has approached water utilities for partnerships in the recent past, support letters and in-kind contributions from the utilities to help with research project typically includes a labor cost estimate (fully burdened) at a rate of \$60 an hour for their technical staff time to provide data and information related to research project.

Table A. 12-2 - Annualized Wage Cost to Respondents

Type of Respondents	Type of Form	Total Burden (hrs)	Avg. Hourly Wage (\$/hr)	Total Cost
Water Utility/ Federal Facility	Participation Decision	83	\$60.00	\$4,980
	Introductory Webinar	83	\$60.00	\$4,980
	Data Upload	303	\$60.00	\$18,180
	<i>Total</i>	<i>469</i>	<i>\$ 60.00</i>	<i>\$28,140</i>

13. Provide an estimate of the total annual non-hour cost burden to respondents or record keepers resulting from the collection of information. (Do not include the cost of any hour burden already reflected in item 12.)

- a. The cost estimate should be split into two components: (a) a total capital and start-up cost component (annualized over its expected useful life) and (b) a total operation and maintenance and purchase of services component. The estimates should take into account costs associated with generating, maintaining, and disclosing or providing the information (including filing fees paid for form processing). Include descriptions of methods used to estimate major cost factors including system and technology acquisition, expected useful life of capital equipment, the discount rate(s), and the time period over which costs will be incurred. Capital and start-up costs include, among other items, preparations for collecting information such as purchasing computers and software; monitoring, sampling, drilling and testing equipment; and record storage facilities.
- b. If cost estimates are expected to vary widely, agencies should present ranges of cost burdens and explain the reasons for the variance. The cost of purchasing or contracting out information collection services should be a part of this cost burden estimate. In developing cost burden estimates, agencies may consult with a sample of respondents (fewer than 10), utilize the 60-day pre-OMB submission public comment process and use existing economic or regulatory impact analysis associated with the rulemaking containing the information collection, as appropriate.
- c. Generally, estimates should not include purchases of equipment or services, or portions thereof, made: (1) prior to October 1, 1995, (2) to achieve regulatory compliance with requirements not associated with the information collection, (3) for reasons other than to provide information or keep records for the government, or (4) as part of customary and usual business or private practices.

There is no direct non-hour cost to respondents.

14. Provide estimates of annualized cost to the Federal government. Also, provide a description of the method used to estimate cost, which should include quantification of hours, operational expenses (such as equipment, overhead, printing, and support staff),

and any other expense that would not have been incurred without this collection of information.

It will take one year to conduct this project. The total cost to the government will be \$464,664, which includes \$429,541 in contract costs to Virginia Tech, and \$35,123 in other costs to the Federal government. The other Federal costs include salary, fringe, travel, and supply expenses related to the involvement of Federal employee: Dr. Lee Sears. Dr. Sears is the principal investigator and the technical monitor for this project.

Table A. 14-1 - Annualized Cost to the Federal Government

Item	Annualized Cost
Contractor	\$429,541
Technical Monitor	\$35,123
Total	\$464,664

15. Explain the reasons for any program changes or adjustments in hour or cost burden.

This is a new collection of data and information.

16. For collections of information whose results will be published, outline plans for tabulation and publication. Address any complex analytical techniques that will be used. Provide time schedule for the entire project, including beginning and ending dates of collection of information, completion of report, publication dates, and other actions.

The pipe performance data will be analyzed by Virginia Tech to determine the state of water infrastructure for multiple pipe types that will be published in a project report. This will be determined by aggregating pipe performance data for different scenarios to develop pipe performance rates by pipe type, size, and geographic location. The key queries will be pipe material failure rates (failures/mile/year) for buried metallic and thermoplastic pipe materials, with and without corrosion protection systems, in various soil conditions.

The research process will start with a comprehensive research and literature review on the performance of water pipes. Qualitative and quantitative research review will be conducted; practice from the utilities will also be identified. This literature and practice review will be synthesized in order to establish the state of the art on water pipe performance.

Within the first month after receiving OMB clearance of the ICR, the data collection effort will be extended to all water utilities and Federal facilities. Data collection is expected to take up to 10 months.

The web-based GIS-driven platform will be developed to house the collected data, run analysis, and visualize the results on this platform. Data mapping algorithms task to transfer the submitted data by the participating utilities and Federal agencies is expected to take up to four months.

17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons that display would be inappropriate.

We will display the OMB control number, expiration date, and Paperwork Reduction Act statement on the collection instruments and all correspondence with prospective respondents.

18. Explain each exception to the topics of the certification statement identified in "Certification for Paperwork Reduction Act Submissions."

There are no exceptions to the certification statement.