Exhibit I

Cost of Capital

Direct Testimony of Robert Kuta

Vice President of Engineering and Chief Water Quality and Environmental Compliance Officer

California Water Service Company

May 2021

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I. INTRODUCTION

Q. What is the purpose of this testimony?

A. The purpose of this testimony is to outline two categories of operational risk which are more likely to affect California Water Service Company ("Cal Water") than the cost of capital peer group. The first relates to the multitude of risks associated with Cal Water's reliance on around 700 groundwater wells to produce roughly half of its water supply[1]. The second, wildfire risk, is related to California's legal framework and natural environment.

II. QUALIFICATIONS

Q. What are your qualifications for this testimony?

A. I joined Cal Water in April 2015 and am Vice President of Engineering and Chief Water Quality and Environmental Compliance Officer. In that role, I have responsibility over asset management, the annual capital program, and all water quality and environmental regulatory compliance.

Q. What is your educational background?

A. I obtained a Bachelor of Science degree in Biology from Central Michigan University in 1986. During the 1990's I completed approximately 40 hours of graduate studies in engineering at Arizona State University. In 2001, I received a Master of

[1] Of the 700 wells, approximately 400 are active. The non-active wells are either on "stand-by" with State Water Resource Control Board ("SWRCB") imposed short term use restrictions or "in-active" pending short or long term solutions to be removed from this classification.

Business Administration from University of Phoenix. I am currently enrolled at MIT Sloan School of Management in the Advanced Certificate for Executives program.

Q. Do you hold any professional certifications?

A. Since 2008, I have held a certificate of Designated Design-Build Professional from the Design Build Institute of America. I also maintain four water and wastewater operator certificates from the State of Arizona.

Q. Please summarize your business experience?

A. My 35-year professional career has spanned roles and responsibilities involving many different aspects of the water industry. These include regulated utility management, large capital program/project delivery, contract operations, and divestiture and acquisition implementation. My employers range from local regulated water utilities to global consulting firms. I have experience in utility ratemaking across many states, including California.

III. RISKS ASSOCIATED WITH GROUNDWATER EXTRACTION

Q. What are the additional risks associated with Cal Water's groundwater wells?

A. A reliance on groundwater well supply adds to Cal Water's risk because there are issues with groundwater that are either not generally experienced with surface water or have different impacts to the company. Groundwater risk can be categorized into four broad categories. First, and most recently evident, is the risk of new laws and regulatory action for which timely cost recovery cannot be obtained. Second is the risk of serving water to customers which does not meet health standards or otherwise injures the customer. Third is the risk of liability to Cal Water for groundwater contamination occurring incidentally through its operations. The fourth risk, is complexity of operation and treatment declining groundwater levels, seawater intrusion, and likelihood of failure due to aging infrastructure.

Q. Does Cal Water rely upon groundwater to serve its customers?

A. Yes. Cal Water obtains approximately half of its water supply from groundwater wells. Statewide, Cal Water owns more than 700 wells. In certain districts, Cal Water relies solely on wells, and in others Cal Water obtains water from a mix of groundwater and other sources. Cal Water employs approximately 300 active treatment processes. Some wells may require multiple treatment processes to remove contaminants.

Q. Is this situation different from the peer group selected by your financial witness, Mr. Sheilendranath?

A. I am familiar with the operations of several of other peers, having worked in the industry for many years and having been employed by several of the other peer group water utilities. Yes, for a couple of reasons – California has been more active in promoting new and stringent water quality regulations than the federal government and most other states. Many of these contaminants occur in California groundwater used for drinking water supplies. Examples of this are the State's maximum contaminant level ("MCL") for perchlorate and its instituting notifications requirements for more than 30 additional contaminants[2] beyond those included in federal regulations, some with additional associated response level requirements. The establishment of California's enhanced drinking water quality regulations, beyond those of many other states, has resulted in greater challenges in avoiding violations of those regulations by water utilities, and the increased prospect for exposure to adverse litigation actions. With that said, Cal Water has, in California: 1) the greatest share of its customer count, 2) the largest and most dispersed service areas, as well as 3) largest number of groundwater supply wells, numbering 700, when compared to the peer group companies. Taken together, these conditions make Cal Water unique among the peer group.

New Regulatory Actions

Q. What kinds of regulatory actions and legislation have affected Cal Water's groundwater supplies in recent years?

A. The Sustainable Groundwater Management Act ("SGMA"), new regulations for Chromium-6 ("CR-6"), 1,2,3 Trichloropropane ("1,2,3-TCP"), and regulatory action on perfluorooctanesulfonic acid ("PFOS"), perfluorooctanoic acid ("PFOA") and perfluorobutanesulfonic acid ("PFBS") have each affected Cal Water's groundwater

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[2] *March 5, 2021, State Water Resources Control Board — Division of Drinking Water https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/NotificationLevels.shtml*

supplies in recent years. We have also had relatively new exposure to nitrate contamination over the MCL.

Q. Can you provide examples of impacts from SGMA?

A. Yes. The Department of Water Resources ("DWR") provides the following summary. "SGMA requires governments and water agencies of high and medium priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Under SGMA, these basins should reach sustainability within 20 years of implementing their sustainability plans. For critically over-drafted basins, that will be 2040. For the remaining high and medium priority basins, 2042 is the deadline."

While Groundwater Sustainable Plans ("GSP"s) for critically overdrafted basins have been submitted to DWR, GSPs for high and medium priority basins are largely still being developed. For this reason, there remains a high degree of uncertainty as to projects and associated fees/costs that will be required by Groundwater Sustainable Agencies ("GSA"s) to address the specific issues for each basin.

Cal Water draws groundwater in 14 basins that are designated by DWR as high-priority basins and an additional 6 basins that are designated by DWR as medium-priority. These 20 basins are included in 17 GSAs and these costs are unlikely to fully be captured in General Rate Cases ("GRCs"). As discussed in the direct testimony by Mr. Greg Milleman, while the modified cost balancing account ("MCBA") has been in place in the past to accurately capture these costs, it will no longer be in place after 2022.

Q. Please explain 1,2,3-TCP and its impact to Cal Water's groundwater supplies?

A. 1,2,3-TCP is a synthetic chemical historically used as a cleaning, degreasing solvent and paint remover. Some widely-used soil fumigants (i.e., pesticides) contained 1,2,3-TCP as a chemical ingredient. It is a volatile organic compound and is recognized as a carcinogen in California. Historical and wide-spread use of pesticides containing 1,2,3-TCP has resulted in the local and regional contamination of groundwater and aquifers, respectively. 1,2,3-TCP is very persistent in groundwater. The State Water Resources Control Board ("SWRCB") Division of Drinking Water ("DDW") adopted an MCL for 1,2,3-TCP of 5 parts per trillion ("ppt") in July 2017 and the new 1,2,3-TCP MCL went into effect on December 14, 2017. California Environmental Protection Agency's Office of Environmental Health Hazard Assessment ("OEHHA") has a related public health goal for 1,2,3-TCP of 0.7 ppt. Based on data up to 2016, about 289 public water system wells with confirmed detections above the MCL of 5 ppt[3].

1,2,3-TCP is found in several of the groundwater aquifers Cal Water uses as drinking water sources across the State. Because of the health risk associated with drinking water contaminated with 1,2,3-TCP above certain levels, corrective actions must be taken to mitigate risk of exposure. For Cal Water, 1,2,3 TCP currently impacts our Bakersfield, Visalia, Selma, Stockton, South San Francisco, and Chico districts. To comply with the 1,2,3-TCP MCL and protect public health, Cal Water has made the

[3] 1,2,3-Trichloropropane (1,2,3-TCP) PowerPoint presentation, January 31, 2018, Division of Drinking Water (DDW) Program Management Branch, California Water Boards https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/123-tcp/123tcp_utility_training.pdf

necessary capital investments to install treatment systems that remove 1,2,3-TCP. Even though Cal Water has successfully implemented granulated activated carbon ("GAC") for treatment, there is rising concerns about increasing costs of treatment and the risks associated with ownership and disposal of the resulting waste stream.

Q. Has the company received full, fair, and timely recovery of necessary capital and operating costs related to 1,2,3-TCP impacts to its customers?

A. The 1,2,3-TCP settlement reimbursed customers for past capital project costs and provided funds for 10 years of projected future carbon change outs on well head treatment. This settlement was based on a set number of claim wells and projected contamination in the future. Those projections may or may not be accurate. For example, there may be more carbon change outs in the future than projected in the settlement. Additionally, there may be other wells impacted by 1,2,3-TCP that were not part of the settlement that will require future treatment. There were several wells not included in the settlement or lawsuit based upon lower 1,2,3-TCP levels.

Q. Please explain per- and polyfluoroalkyl substances ("PFAS").

A. PFAS are synthetic organic perfluoronated compounds that are extremely persistent in the environment and are commonly referred to as "forever compounds". PFAS were commercially used as a surface-active agent to make a wide variety of industrial and chemical products stain-resistant and waterproof. They are found in firefighting foams, cleaning products, and other materials used in the aerospace, automotive, construction sectors.

Approximately 5,000 PFAS compounds have been identified at this time. Studies indicate exposure to two PFAS compounds, perfluorooctanoic acid ("PFOA") and perfluorooctanesulfonic acid ("PFOS") over certain levels may result in adverse health effects, such as carcinogenic effects, potential liver toxicity and reproductive developmental effects.

Q. What regulations exist regarding the treatment of PFAS?

A. No federal MCL for PFAS currently exists. However, in 2016, the U.S. Environmental Protection Agency ("EPA") issued a lifetime health advisory of 70 ppt for PFOS and PFOA combined for drinking water. The EPA advises water systems to notify their customers of the presence of these compounds if combined levels of PFOS and PFOA are detected above a total of 70 ppt. In California, the SWRCB has established Notification Levels ("NLs") and Response Levels ("RLs") for three PFAS compounds - PFOS, PFOA, and perfluorobutanesulfonic acid ("PFBS"). In addition to this, California Assembly Bill ("AB") 756 went into effect January 1, 2020 requiring drinking water systems to either (1) take sources out of service immediately; (2) utilize treatment or blending; or (3) provide public notification for detections above the established response levels. Then, in February 2020, the SWRCB lowered the response levels to 10 ppt and 40 ppt for PFOA and PFOS, respectively. On March 5, 2021, DDW issued notification and response levels for PFBS of 0.5 parts per billion (“ppb”) and 5 ppb, respectively.

Q. How is Cal Water impacted by the presence of PFAS in its groundwater sources?

A. Based on PFAS testing completed by Cal Water so far, 51 of Cal Water’s groundwater sources have PFAS detections over the California-established NLs. Of the 51 sources, 16 have detections over the RLs and require corrective action to comply with AB 756. As required by AB 756, Cal Water either removed these sources from service immediately or installed treatment.

We anticipate new regulations for these contaminants no later than 2023, a full 8 years after EPA made its initial announcement, which will be after the anticipated processing time of Cal Water’s 2021 GRC. There are also several unresolved concerns relating to testing, treatment and residual management. For example, the EPA's current testing method (EPA Method 537.1) covers analysis of 18 PFAS-related compounds. It is currently developing a new testing method that will increase the analyte count to 29. It is unclear at this time how many of Cal Water’s facilities could be impacted should additional regulatory limits be established for these soon-to-be detectable PFAS compounds as a result.

Q. Has Cal Water been financially impacted by PFAS?

A. Yes, Cal Water is impacted financially by the presence of PFAS in its groundwater supplies in several ways. First, to date, Cal Water has expended over $770K in PFAS sample collection, analyses and reporting.

Second, in compliance with AB 756, Cal Water has and will continue to, to the extent practical, remove all groundwater sources having PFAS concentrations above the State's response limit; this currently totals 16 wells. Removal of these supplies requires water to supplied from other sources, often from sources further away. This requires additional energy to move the water, and greater operations and maintenance time to ensure the higher service duty needed from the remaining wells is maintained. In some cases, additional treatment costs are experienced, as the removed well may not have had treatment, but the replacement source does. In cases where alternative groundwater supply is not available to supplement the lost water production of removed wells, but purchased surface water is, Cal Water faces increased operational expenses in obtaining additional purchased water.

Third, in anticipation of imminent State or Federal PFAS MCLs and in order that it may return wells exceeding the existing State PFAS response levels to service, Cal Water is planning for installation of treatment at impacted wells and wells that, through water quality monitoring, are approaching State response levels for PFAS. To date, Cal Water has expended $3.0M toward these efforts. After performing a feasibility and cost effectiveness assessment of available treatment options, Cal Water considers wellhead GAC treatment as the highest ranked treatment option. In considering GAC treatment, Cal Water must now initiate reviews as to the permitting and constructability requirements of these large treatment assets. For example, Cal Water must determine whether the existing well site parcel is of suitable size to both accommodate the treatment works and to allow sufficient space for conducting future well site maintenance. If a parcel is deemed not large enough, decisions must be made on whether to acquire additional contiguous land, replace the well at a new parcel, or keep the well for standby use only. In advance of PFAS MCLs, each of these decisions bring regulatory uncertainty of cost recovery for Cal Water. My understanding is that cost recovery through rates is not certain until there is an MCL. Mr. Milleman's testimony address the regulatory risks of cost recovery.

Q. Focusing on water quality, what is Cal Water's most commonly occurring groundwater contaminant, and what health risks are associated with this contaminant?

A. Nitrate is one of the more widespread contaminants regulated by an enforceable standard and found in groundwater sources in California. Nitrate is a primary drinking water quality contaminant with immediate health effects due to the fact that it is an acute toxin. Since nitrates are very soluble and do not bind to soils, nitrates have a high potential to migrate to and move with groundwater. Nitrates/nitrites moving vertically in soil below the root zone are unlikely to be consumed by plants or other organisms, resulting in contamination of groundwater sources. High levels of nitrate in drinking water causes serious illness and sometimes death.

Several of Cal Water's groundwater sources are impacted by nitrate given the fact that it is naturally occurring and used widely as a fertilizer in the agriculture industry. The current MCL for nitrate is set at 10 ppb.[4] Nitrate over this level is considered an acute health risk because it can cause methemoglobinemia or blue baby syndrome. Blue baby syndrome is a serious illness in infants due to the conversion of nitrate to nitrite by the body, which can interfere with the oxygen-carrying capacity of the child's blood. Cal Water has an internal action level of 40 ppm, where it will normally take a well off-line if possible.

Q. What does Cal Water do to remediate nitrate contamination?

A. Cal Water takes the necessary steps to ensure all water served to our customers meets the regulatory standard when it comes to nitrate. Nitrate is currently regulated by the EPA and has an established MCL[5]. Public water systems are required to monitor and treat sources with nitrate contamination. No water is served by Cal Water above the nitrate MCL.

Nitrates are expensive to treat. Cal Water uses several methods to mitigate nitrate contamination. One approach is to blend water containing higher levels of nitrate with water containing lower nitrate levels. This requires dedicated pipelines and specialized facilities, such as on-line nitrate monitoring equipment, reliable flow control

[4] Levels established in the US Environmental Protection Agency safe drinking water act of 1974 and became effective in 1992.

[5] Levels established in the US Environmental Protection Agency safe drinking water act of 1974 and became effective in 1992

and measuring devices, mixing manifolds and diligent operational oversight. Blending is not always feasible, especially if a low-nitrate source is not readily available or in close proximity for blending purposes. In addition, blending is not always a desirable treatment option because of the dependence on multiple sources of lower nitrate water and other operational constraints. In addition, blending still delivers nitrate in the final product, albeit at lower concentrations.

Another approach that Cal Water utilizes is ion-exchange systems installed at the Company's wells. These systems use a resin technology that allows for nitrogen ions to be extracted from the source water and collected on resin beds, resulting in lower nitrate levels in the finished water. While this technology works well, it has both greater capital costs, due to the need for expensive equipment and operating costs as it consumes power and generates large quantities of brine wastewater that requires an expensive disposal.

Q. Who is responsible for nitrate contamination and can Cal Water pursue legal action to recover the expensive treatment costs for nitrate mitigation?

A. Nitrate contamination of groundwater occurs from a variety of sources. Usually it is the result of fertilizer application from agricultural uses. Nitrate contamination can also be caused by improper disposal of animal wastes, such as often found at dairies. Because there is often a long time between when the surface activity (fertilizer application or disposal of animal wastes) occurs and when nitrate contamination is detected in the groundwater, it can be difficult and expensive to pursue potentially responsible parties ("PRPs"). Unlike organic chemicals, there may not be a chemical signature of nitrate contamination that can be linked to specific sources, manufacturers or uses. Pursuit of manufacturers or PRPs is complicated by balancing the best available science and legal considerations.

Q. Explain why Cal Water chooses to treat rather than notify its customers of the contamination?

A. Water utilities continuously struggle to manage consumer's perception about the safety and quality of their water. Due in part to publicized national drinking water quality incidents, some customers believe their water is unsafe. As a result of this, Cal Water makes considerable efforts to instill customer confidence in the safety of their water. This is especially important when other states have established MCLs for some of these compounds before California takes action. The customer notification process based on AB 756 requires the inclusion of specific health language that customers may find very alarming. The following is an example of the health language Cal Water is required to provide customers for exceeding the notification level and response level for PFOS, "*Perfluorooctanesulfonic acid exposures resulted in immune suppression and cancer in laboratory animals".* For these reasons, and the overall benefit of minimizing the health risks to our customers, Cal Water chooses to remove contaminants from its drinking water.

Q. Does the same occur with contamination which is trending toward an MCL but not yet violating?

A. Yes, the company is faced with difficult decisions and must decide to invest in treatment in some cases prior to exceeding the MCL. This can occur quickly, as was the case for 1,2,3-TCP regulation where DDW required utilities to begin monitoring or be in compliance in less than 60 days. Further, these conditions can occur between rate cases resulting in cost recovery challenges.

Q. Are there other contaminants or water quality parameters for which Cal Water has this same concern?

A. Yes, in our routine customer surveys developed to gauge their wants and needs, they consistently expect treatment for taste, odor, and color as they perceive their water to be unsafe if these qualities are sensed to be adverse. However, these parameters, along with the presence of certain chemicals which are not deemed health hazards, present a similar conundrum. Treat, which is what the customers consistently say they want, or do nothing since the tap water is in compliance with primary drinking water standards. This situation generates a question of cost recovery eligibility when the Commission is presented with these capital projects in our general rate cases.

Q. Do water purveyors in California have heightened risk due to California's aggressive approach to regulating new water quality compounds?

A. Yes, EPA allows states that have primacy, that is the responsibilities associated with implementing EPA approved programs, to establish new regulations as long as those regulations are equivalent or more stringent than the federal regulations. California is a primacy state that has moved more aggressively on a variety of substances than most other states when it comes to establishing new regulatory standards. The Perchlorate, CR-6 and 1,2,3-TCP regulations are examples of new regulations established by California in recent times. Newly identified regulated or potentially harmful compounds commonly leaves our customers with the impression that their water is unhealthy.

Q. What are the risks related to delivering water which exceeds DDW standards?

A. All water utilities must protect public health and Cal Water bears the responsibility for maintaining compliance with all state and federal drinking water requirements. If a serious violation of standards occurs either due to misoperation of a facility on a day-to-day basis or due to an emergency or unforeseen event, Cal Water, its staff, chain of command, and ultimately its Board of Directors are collectively responsible. Impacts of water quality violations are wide ranging and typically of high cost and consequence to a utility. For example, serving drinking water in excess of state or federal standards, even if only short term, may result in loss of confidence by customers, regulators and other stakeholders requiring technical or business process improvements as well as major community outreach campaigns in order to rebuild public trust. Longer periods of water quality exceedances expose customers to contaminants that may result in widespread acute or chronic health effects or even fatalities. Should Cal Water experience such exposures as a result of noncompliance, the associated costs are certain to be high.

Q. Is it likely these costs would be recovered in rates?

A. It is uncertain and largely depends on the regulatory standard(s) violated. It is my understanding that expenses incurred to meet water quality standards having established MCL are recoverable in rates. However, for meeting DDW's NLs and RLs only reasonable and prudent expenses can be recovered in rates. Therefore, it is possible that the Commission could determine delivering water which exceeds DDW NL or RL standards is not prudent, regardless of Cal Water's efforts to do so, and disallow related cost recovery.

Q. Does Cal Water have heightened risk of serving water which does not meet standards compared to the peer group?

A. I am familiar with the operations of several of other peers, having worked in the industry for many years and having been employed by several of the other peer group water utilities. Yes, for a couple of reasons – California has been more active in promoting new and stringent water quality regulations than the federal government and most other states. Many of these contaminants occur in California groundwater used for drinking water supplies. Examples of this are the State's MCL for perchlorate and its instituting notifications requirements for more than 30 additional contaminants[6] beyond those included in federal regulations, some with additional associated response level requirements. The establishment of California's enhanced drinking water quality regulations, beyond those of many other states, has resulted in greater challenges in avoiding violations of those regulations by water utilities, and the increased prospect for exposure to adverse litigation actions. With that said, Cal Water has, in California: 1) the greatest share of its customer count, 2) the largest and most dispersed service areas, as well as 3) a large number of groundwater supply wells, numbering over 700, when compared to the peer group companies. Taken together, these conditions make Cal Water unique among the peer group.

Legal Liability

Q. Can you give other examples of Cal Water costs that have not been fully recognized in rates?

A. Yes. Cal Water has been involved in litigation in several districts to protect its rights to continue pumping groundwater to the benefit of its customers. Since the timing of litigation cannot be predicted, these costs are not always anticipated in GRCs. Even though the MCBA has captured the additional costs associated with switching between groundwater and purchased imported surface water, Cal Water's legal

[6] *March 5, 2021, State Water Resources Control Board — Division of Drinking Water* *https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/NotificationLevels.shtml*

expenses to continue its use of lower-cost groundwater are not always captured in GRCs. Further, Cal Water will no longer have an MCBA after 2022 to mitigate this risk. The loss of the MCBA is addressed in Mr. Milleman's testimony.

Q. Is groundwater contamination predictable and something you can plan for?

A. No. In rural agricultural-based communities, there is a greater likelihood of contamination from nitrate and other chemicals used for agriculture. However, it is very difficult to determine what will happen to the concentration levels in the groundwater at specific locations. In some cases, the levels remain elevated and constant for a long time, while in other cases, the contaminant levels spike without predictable warning. Cal Water carefully monitors and analyzes the trends for the contaminants it has detected at each well, and as levels near regulatory limits they require more frequent monitoring. Unfortunately, contamination does not always follow trend lines. In addition, health effects of contaminants are constantly reevaluated, and revised and typically MCLs become more stringent over time. This is especially true for emerging contaminants such as PFAS for which the new regulatory framework is rapidly being developed. As a consequence, it is difficult to forecast future treatment needs for a three-year general rate case cycle. This variability in the presence and concentration of contaminants makes utilizing groundwater sources more complex and uncertain for long-term use.

Q. What are some of the environmental risks associated with a chlorinated distribution system?

A. An area of concern and risk associated with chlorinated potable water is its release to the environment in unplanned discharges that may impact neighboring bodies of receiving water or drainage areas. Sensitive aquatic species can be impacted by chlorine concentrations typically found in potable water. Cal Water uses best management practices and follows all state and federal regulations to minimize impacts and reduce concentrations of chlorine in unplanned water discharges from the distribution system. Should a water main line break, unplanned releases of chlorinated water commonly enter into nearby storm water conveyance systems that often terminate into natural waterways. The SWRCB has rigorous rules and reporting requirements with severe fines for discharge violations, regardless whether the discharge was accidental, such as a hydrant struck by an automobile. It is my understanding that fines are generally not considered reasonable expenses and therefore not usually recoverable in rates.

Q. Is Cal Water at risk of being named a responsible party in groundwater contamination litigation?

A. Yes. In its Chico District, Cal Water was named partially responsible for a contaminated groundwater plume. While Cal Water was not the cause of the contamination, the purported rationale for this was that, by using its groundwater wells, Cal Water potentially altered the plume of contamination through subsurface groundwater movement in the aquifer. Accordingly, Cal Water's general reliance on groundwater, as a lower-cost source of supply, also exposes it to greater risk, as compared to using some surface water supplies, in that it may be deemed responsible for dispersement of contamination caused by others.

Q. Has Cal Water pursued water contamination litigation against polluters?

A. Yes. In many Commission proceedings, it has determined that the proceeds of contamination litigation that are used to remediate or replace contaminated plant, less transactional expenses, are to be considered Contribution in Aid of Construction ("CIAC"). When proceeds are treated as CIAC, there is only a benefit to our customers and no corresponding benefit to the Company for the risks it undertook in pursuing litigation.

In the Commission's contamination proceeds proceeding, the Commission stated, "[w]here a utility can show that it is assuming an above normal risk related to contamination litigation, the Commission shall, where appropriate, take that risk into account in setting the company's rate of return in the cost of capital proceeding for class A water utilities and in the general rate case for the Class B, C and D water utilities."[7]

Cal Water was very aggressive in pursuing MtBE polluters and was able to achieve a settlement with some of the MtBE manufacturers to be used for replacement facilities for the benefit of customers. This demonstrated stance should be factored into

[7] Rulemaking 09-03-014 at 65, Ordering Paragraph 9.

Cal Water's overall return on equity equation. In the case of MtBE, Cal Water recovered a net of approximately $34 million from PRPs, of which $28.5 million was used to reduce rate base. In setting Cal Water's equity return, the Commission should consider the increased likelihood of water contamination due to Cal Water's large number of distributed groundwater wells. It should also consider Cal Water's substantial efforts to pursue potentially responsible parties.

More recently, Cal Water successfully pursued litigation against the manufacturers of the water contaminant 1,2,3-TCP. Cal Water received $85 million in a 2017 settlement. Cal Water is now in the early stages of litigation against the manufacturers of PFAS.

Q. Did Cal Water (as a company) benefit from pursing the 1,2,3-TCP contamination litigation?

No. The net proceeds from the $85 million 1,2,3-TCP settlement (after payment of outside legal fees and related expenses) were used for the benefit of customers. The net proceeds were used for capital projects and expenses related to the treatment of 1,2,3-TCP contaminated wells. This included the initial installation of treatment units at well sites, on-going purchasing of filter media to remove 1,2,3-TCP and labor needed to replace filter media.

Q. Did Cal Water (as a company) benefit from the ratemaking treatment of contamination proceeds used for capital projects?

No. In prior proceedings, the Commission has directed that proceeds of contamination litigation that are used to remediate or replace contaminated plant, less transactional expenses, be treated as CIAC. When proceeds are treated as CIAC, there is only a benefit to customers and no corresponding benefit to the company for the risks it undertook in pursuing litigation. Cal Water treated the proceeds from the 1,2,3-TCP contamination litigation as CIAC and offset other expenses captured in the 1,2,3-TCP memo account. All unspent proceeds to date are also tracked in the 1,2,3-TCP memo account until they are used to fund the remaining 1,2,3-TCP remediation projects.

Operational Complexity and risk associated with treatment

Q. What additional complexity arises from required groundwater treatment plants?

A. With the significant increase in the number of treatment plants required due to groundwater contamination and more stringent water quality regulations, it has become much more challenging to operate our water systems, meet system demands and maintain compliance. Operating the treatment plants requires highly qualified (meeting minimum certification requirements), trained, and knowledgeable operators to successfully run the facilities while maintaining regulatory compliance. There are many additional regulatory requirements, including, but not limited to, observing limited allowable well operating durations, managing discharged well water not run to the system and water quality sampling that are required. Throughout the year, there is a minimum amount of downtime that is required to perform routine maintenance while still meeting system demand, and this maintenance requires highly skilled labor to perform. Additional staff is required, such as instrumentation technicians, to maintain the more complicated equipment. Most treatment plants need to be run continuously or frequently due to the complexities associated with the startup and shutdown of facilities, so the production facilities need to be balanced during periods of low demand to meet minimum production without over pressurizing the system. When starting a treatment plant up after a downtime, discharging to waste is required for testing, and this can be very complex depending on what facilities are available to receive large volumes of discharged water.

Q. What additional risks arise from groundwater treatment?

A. There are increased safety risks to Cal Water employees, the community, and the environment. Discharges to waste can result in negative environmental impacts, such as harm to aquatic life, and risk to the public, such as safety hazards due to flooding a portion of a street. There is an increased probability of failure of a treatment plant process due to the inherent complexities of equipment and operations, and this may cause non-compliant water to enter the distribution system. There are additional components that require specific safety plans, and there are often supply chain challenges for specific equipment and materials, including treatment plant media such as activated carbon, or chemicals such as disinfectants that are part of the treatment plant process that are required to keep the water safe to drink while in the storage and distribution systems.

Q. Do secondary contaminants factor into water quality standards?

A. Yes. Although secondary contaminants are not currently regulated by enforceable standards, they are widespread and an increasing concern for water systems. The aesthetics of the water are the first thing a customer will notice about their water. Adverse taste, color, or odor, occurring from secondary contaminates creates a customer perception that the water is unsafe. Notwithstanding the absence of risk to health, customers expect increased water system monitoring and sometime insist upon the installation of treatment for these contaminants. Although these contaminants may not be harmful to public health, concentration exceeding certain levels can lead to unstable water quality in the distribution system.

Q. What other variables are there to consider when utilizing groundwater sources?

A. When utilizing groundwater sources, there are often many variables that are out of the control of the water company. Recently, due to the extended drought, attention has been called to declining groundwater levels in many cities Cal Water serves, particularly in the Central Valley. Declining groundwater levels require more electricity to pump water from deeper levels and also typically results in lower well production. These additional electrical costs, maintenance expenses and other costs associated with lowering pumps and columns are examples of costs that will not be recovered. It is important to note that should groundwater levels decline significantly, entirely new pumps and motors may be required to lift the water from greater depths or the well could be lost from production entirely. From a water quality perspective, lowered groundwater levels may cause a well to pump from groundwater of different quality or may cause contaminants to be drawn toward the well. There are many groundwater pumpers in the basins we draw from, and declines in water levels are not usually attributable only to urban use.

Wells also become less efficient over time. Wells require rehabilitation to maintain their pumping capacity, which may include expensive electrical service and panel board upgrade to deliver increased horsepower demand for water lift. Unfortunately, a well's behavior is not predictable. Well rehabilitation is more of an art than a science. Again, precise estimates of these costs often cannot be developed for GRCs.

Q. Doesn't Cal Water include treatment facilities in rate base after approval in a GRC?

A. Cal Water proposes water treatment equipment in its GRCs. However, in many cases, since a well-defined treatment solution for a contaminated source may be unclear, or the costs associated with a treatment project are uncertain at the time of the GRC, these projects are often given advice letter treatment subject to a cap. Unfortunately, Cal Water outlays the capital costs for these projects first, and then files for inclusion into rates after the projects are in service. Since the water treatment projects are dependent on a number of items, including DDW permitting, there is often a significant lag between when the projects are constructed, and when Cal Water can include them in rates. For the projects whose ultimate costs exceed the advice letter "cap", there is a much longer delay for full recovery as these projects need to be examined in the course of the next GRC. Therefore, this significant lag in recovering the costs for water treatment projects leads to a long-term under-recovery of equity returns. This is among the factors discussed in Mr. Milleman's testimony.

Q. Does Cal Water's use of groundwater provide benefits to its customers?

A. In some cases, groundwater wells are the only source of supply for a service area; however, in nine Cal Water service areas, we use groundwater along with other sources (purchased or surface water) to provide a mix of sources. Using local groundwater supplies has been, and in most case continues to be, a benefit to the customers because Cal Water is typically able to keep retail water rates lower by utilizing groundwater supply sources. Cal Water's 2020 total groundwater pumping approximated 133,000 acre feet. The average cost differential between groundwater and purchased water is estimated at $800 per acre foot. However, purchased water is not available in all districts or in cases where it is available it may not be obtained in quantities equal to demands, therefore potential cost benefits vary by district.

Q. Are risks associated with groundwater extraction proportionately shared between customers and the utility?

A. No. Customers significantly benefit from lower costs due to Cal Water's use of groundwater, but Cal Water faces additional risks associated with uncertainty and operation of groundwater facilities. Unless Cal Water's rate of return is adjusted to reflect these additional risks, Cal Water will solely bear those risks.

IV. RISKS ASSOCIATED WITH WILDFIRE

Q. What are the wildfire risks unique to Cal Water?

A. The wildfire risks unique to Cal Water are that Cal Water has multiple water districts throughout the state that each have their own wildfire danger. This could lead to, and has led to, multiple wildfires occurring at once in multiple districts.

Additionally, many of the districts encompass the urban/wildland interface boundary with direct connection to lands designated as having extreme and high risk of wildfire. This situation allows for greater risk of wildfires interacting with and crossing into urban areas, and thus requiring water resources from these service areas to help fight a wildfire.

Finally, the current Cal Water systems were not originally designed with the purpose of fighting wildfires, but rather to supply water to communities under the requirements of the local fire departments. These urban fire protection requirements are very different from the sudden, often wide-spread and demanding requirements needed to sustain fighting a wildfire. It is clear that these wildfires can quickly overwhelm and outlast water system capabilities, leading to extensive property, water system damage and other losses.

Q. What specific risks do you face operationally when it comes to wildfires?

A. Cal Water has multiple districts where the entire district, or portions of the district lie in wildfire risk areas. Given the location of these districts, there are three primary operational risks: disconnection of power, lack of ability to move water to a needed area, and lack of storage to provide enough water for the duration or magnitude of a wildfire. These risks could lead to spread of a wildfire to structure fires within a water system, damage to water facilities located within a wildfire prone area, and loss of water to an area due to excessive demand or failure of equipment.

<u>Disconnection of power</u> - If power is disconnected in a wildfire or Public Safety Power Shutoff ("PSPS"), this prevents pumps from properly providing water to pipes and hydrants for a wildfire event. Hydrants are used as a resource by fire agencies to fight catastrophic wildfires, and not having this available water could allow a wildfire to continue to grow to implicate structures and damage property. Additionally, if backup power facilities are not available, have run out of fuel, or cannot be moved into place in time, this prevents water from being available to the fire hydrants.

<u>Lack of ability to move water to a needed area</u> - Depending on the location of the wildfire and the available facilities, if a wildfire cuts off the water supply to that area, there may not be alternate facilities to provide water, thus allowing the wildfire to burn uncontrolled. There could also be cases where wildfire demand is much higher than fire

flow building requirements, and an area could experience lower available flow and pressure than needed because of large fire-fighting demands. These scenarios can make supply vulnerable, and due to existing facilities, may not be able to be remedied during the fire. Restrictions within the pipeline grid can also limit the ability to move water, and can include damaged equipment, water loss due to leaks, undersized mains, and dead-end mains.

Lack of storage to provide enough water for the duration of a wildfire – Tanks can provide a longer supply of water, but given the longer durations of wildfire events, even larger tanks can quickly be drained. If the wildfire also damages the pumping facilities to fill or empty the tank, or the transmission pipelines to move more water to or from the tank, once the tank is empty, there would be no more water to fight the fire, thus allowing it to burn uncontrolled.

In each of these cases, the ability to supply water may be dependent on the ability of water staff to access the water system. Often for safety, fire and police personnel limit water system staff from entering an area due to wildfire danger, but this can also limit and prevent the ability to move water to different areas to help fight a wildfire.

Q. What is the frequency of wildfire danger and has it gone up in recent years?

A. Given changing climate conditions, including less precipitation leading to drier conditions, the frequency of wildfire events and their related magnitude has increased in recent years. There have now been multiple fires within the same region, and throughout the State of California at the same time, and fire season is starting earlier in the year due to drier weather conditions. In the last few years, California has seen the largest wildfires and record acreage burned in its history.

Q. What wildfire events have you been specifically involved in?

A. Cal Water's involvement with wildfires has increased significantly since 2015. Because Cal Water is situated in diverse geographic settings across the state, it is subject to the impact of many wildfires. Impacts can take several forms including loss of power due to nearby wildfires, providing mutual aid to neighboring systems, using hydrants to fill water tenders to fight fires, providing water to fire base camps or to relocated refugees from burned areas elsewhere, and intense wildfire system demand within its own service areas. Cal Water's operational response to wildfire differs in each circumstance, but usually involves opening an Emergency Operations Center ("EOC"), and operating under emergency response conditions with backup facilities to ensure maximum flow and pressure are available to firefighters.

In 2016, Cal Water was involved in the Erskine fire. This wildfire encroached into the service area of the Kern River Valley District, and the individual water systems of Lakeland, Squirrel Mountain, and Southlake all experienced significant impacts. Approximately 309 structures and 3 lives were lost in this tragic event. During this disaster, Cal Water ran the water systems with portable auxiliary power equipment, turned off services to destroyed homes, and assessed damage to facilities.

In 2017, the Calgary Fire occurred within the Wofford Heights system in Kern River Valley and destroyed nine homes. Also in 2017, Cal Water closely monitored the Wall fire near the Oroville system.

In 2018, Cal Water monitored the Ranch fire, part of the larger 410,200 acre Mendocino Complex fire. This wildfire came within 1.3 miles of the Redwood Valley District's Lucerne system. Thankfully, no structures were impacted in Cal Water's service area. The Lucerne water treatment plant and high zone booster station ran on auxiliary power and needed operation personal to visit around the clock. The plant was the only water plant on the north side of Clear Lake that continued operation during the fire and Cal Fire used the hydrants in Lucerne for their tenders and support ground crews. The office in Lucerne was evacuated with only the treatment plant operators remaining. Also, all important files and equipment were moved to Emergency Operations Center in Marysville, where Cal Water oversaw its emergency efforts.

On November 8, of 2018, two in-district wildfires began nearly 500 miles apart that greatly impacted Cal Water. In the north, the Camp Fire, which destroyed much of the Town of Paradise, encroached into the Chico District service territory. Cal Water evacuated the office and moved important equipment to the western side of the city for protection. Emergency operations put a premium on keeping tanks full for firefighting efforts. 14 Cal Water Chico district employees lived in Paradise and 6 lost homes. Cal Water brought in resources from other districts to help run day to day operations.

In the south, the Woolsey fire encroached into the Westlake district service territory and caused damage to Cal Water facilities. This fire also caused significant demand loads that quickly lowered tank levels and also caused district staff to dangerously go back into the fire zone to turn off customer service lines. It was only through direct staff communication to Cal Fire asking for water to be pulled from another pressure zone, that prevented service interruptions and part of the water system from being drained. In 2019, Cal Water was involved in the Kincade fire near the Guerneville area, and actively monitored the Getty, Easy, and Maria fires near the Thousand Oaks area near its Westlake district.

In 2020, Cal Water was involved in the Lake fire near Antelope Valley, the CZU Lighting Complex fire near Santa Cruz and San Mateo County, the River fire near Salinas, the Dolan fire near the King City District, LNU Lighting Complex fire near Guerneville, Dixon, and Travis Air Force base, the SCU Lighting Complex fire near San Jose and Livermore, the North Lightning Complex fire near Oroville, and the Wallridge fire near the Redwood Valley District. In each case Cal Water monitored these fires through maps to the Emergency Operations Centers, and made plans and mobilized staff as needed, as the fires came close to and encroached into Cal Water service territories.

Q. Are significant portions of your service territory located in high fire danger areas?

A. The following table describes the percentage of pressure zones of Cal Water districts near the Extreme Threat and Very High Threat levels as defined by Cal Fire Wildfire Threat Maps. The second graphic details the Cal Fire threat levels throughout California.

District	System	Highest Threat Level	% of Zones near Extreme Threat	% of Zones near Very High Threat
Antelope Valley	Leona Valley	Extreme	100%	
	Lake Hughes	Extreme	100%	
	Grand Oaks	Very High		100%
Westlake	Westlake	Extreme	75%	25%
Chico	Chico	Extreme	50%	38%
Redwood Valley	Lucerne	Very High		100%
	Armstrong Valley	Very High		100%
	Coast Springs	Very High		100%
Kern River Valley	Kernville	Very High		100%
	Lakeland	Very High		100%
	Lower Bodfish	Very High		100%
	Onyx	Very High		100%
	South Lake/ Squirrel Mountain	Very High		100%
	Split Mountain	Very High		100%
	Upper Bodfish	Very High		100%
Palos Verdes	Palos Verdes	Very High		100%
Livermore	Livermore	Very High		100%
Bear Gulch	Bear Gulch	Very High		100%
Oroville	Oroville	Very High		100%
Salinas	Country Meadows	Very High		100%
	Las Lomas	Very High		100%
	Oak Hills	Very High		100%
	Salinas Hills	Very High		100%
	Salinas	Very High		33%
Los Altos	Los Altos	Very High		88%
Bayshore	South San Francisco	Very High		82%
	San Mateo	Very High		76%
	San Carlos	Very High		64%
Bakersfield	Bakersfield	Very High		63%
Hermosa Redondo	Hermosa Redondo	Very High		43%
King City	King City	Very High		33%

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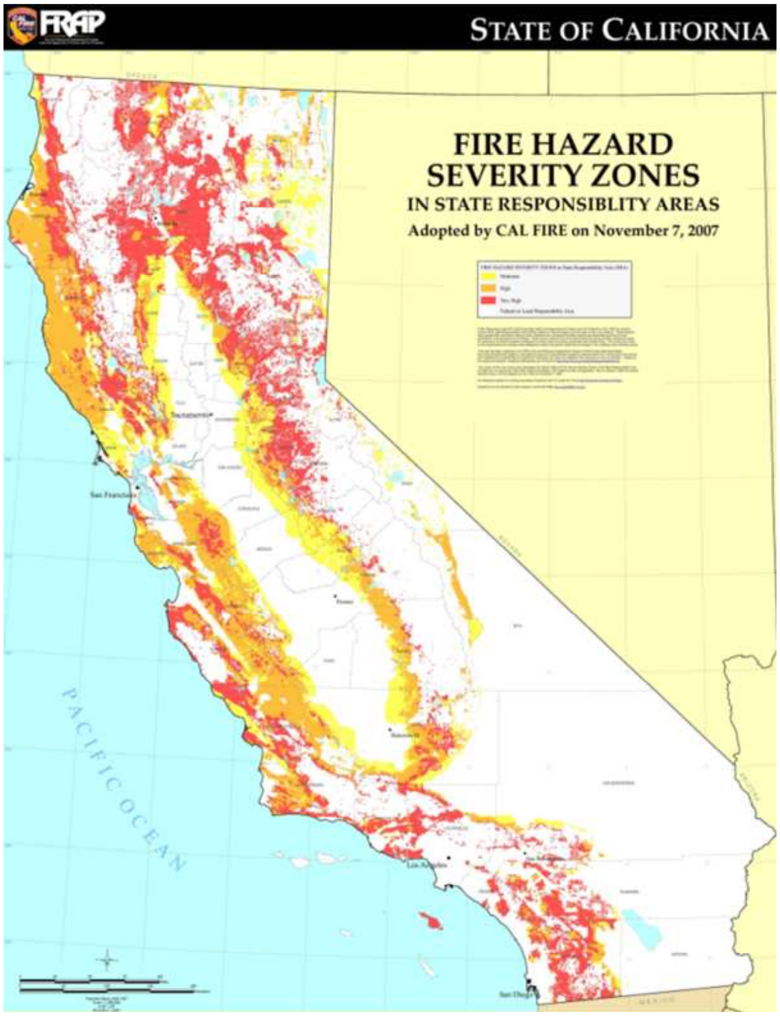

Originally found through (https://gis.data.ca.gov/datasets/789d5286736248f69c4515c04f58f414)

Q. Why is it challenging to be prepared for all wildfire events?

A. There are four primary reasons why it is challenging to be prepared for all wildfire events, including lack of water system design standards for wildfire events, the challenge of providing water for the duration and in the quantities needed, the cost of building higher capacity and redundant facilities, and the availability of land to build redundant facilities in needed areas. First, because water distribution systems are intended to service drinking water and meeting urban fire flow requirements, there is not a water flow design requirement for wildfire situations. There are fire codes requiring minimum flows for specific structures, but the wildfire needs can be much larger and for a much longer duration. Without a defined wildfire standard flow, it is hard to design to an unknown flow need, and it is economically unrealistic to design for continuous, unlimited flows in all situations, in all areas of the system. Where there is the possibility of providing redundant flow sources if a primary source is impacted by a wildfire, there is a large cost to design, construct, operate and maintain a purely redundant system, and often land is not available in the areas needed for these facilities, closest to the wildfire threat.

Q. Have utility assets been or come close to being damaged?

A. As more fires are burning into the urban/wildland interface, Cal Water is coming closer to experiencing damage to its facilities. Cal Water sustained damage to facilities, including tank coatings and lost services with the Erskine fire in the Kern River Valley fire in 2016. Cal Water also sustained damage to a pump station building, storage sheds, and solar panels in the Westlake district due to the Woolsey fire in 2018.

The Mendicino Complex fire in 2019 came very close to damaging the Lucerne treatment plant facility that is the sole source of water supply to the area. The River fire in 2020 came close to damaging pump station facilities in the Salinas District. The North Lightning Complex fire in 2020 came very close to damaging the primary treatment plant for the district in Oroville.

Q. Has service been interrupted?

A. In Kern River Valley, with the Erskine fire, customer homes were lost to the fire, and thus services were turned off to maintain water pressure in the water system. Auxiliary power equipment was used to continue to run the water system.

In Salinas, with the River Fire in 2020, service was interrupted to customers in an upper pressure zone. Service was very close to being interrupted in the Woolsey fire in 2018 near Thousand Oaks, the Mendicino Complex fire near Lucerne in 2018, and the North Lightning Complex Fire in 2020 near Oroville.

Q. What process did you go through to properly plan and prepare for wildfires?

A. Cal Water went through a very rigorous process to develop a wildfire risk scoring methodology so that the water systems would be better prepared for future wildfires. The risks of concern from a wildfire include the spread of a wildfire to structure fires with a water system, the risk of damage to facilities within a wildfire risk area, and the risk of the loss of water to an area due to high demand or failure of equipment. The risk scoring method evaluated the wildfire threat in each area using Cal Fire wildland fire threat data and the Commission's Fire-Threat Map, the population in that region, and the potential system risks in that area. For each system risk, including supply, backup power, storage, and electric grid strength, a metric score was developed. Given these factors, a total risk score was generated for each pressure zone of each Cal Water system. With these risk scores to identify the most at risk areas , and using geographic and spatial data, an analysis and planning process then occurred to identify potential methods to alleviate specific risks, and to provide backup and redundant supply to certain areas if their primary water source was damaged or no longer available. These methods were then crafted into individual projects with costs estimates, and validated with the staff in each water system, to identify the best scope and project to help mitigate the wildfire risk. In the end, 48 projects in 13 districts were recognized as the most critical to move forward first, and include additional pipelines, valves, fire hydrants, storage, auxiliary power, portable booster connection points, and station facilities. These projects also align with the America's Water Infrastructure Act ("AWIA") efforts and the Risk and Resilience Assessments that also made recommendations to address the risk of wildfires.

Q. What mitigation has Cal Water put in place to be prepared for future wildfire events?

A. Cal Water is actively designing and constructing the 48 wildfire projects identified as most critical to assist in protecting against wildfire impacts within our service areas. Additional projects will also be identified in the 2021 General Rate Case filing to help mitigate similar wildfire risks.

Within each system, additional mitigations were also put in place, including special training on wildfires, small portable tanks on district vehicles to put out small spot fires, the cutting back of trees and foliage near water facilities, and additional training and testing of backup generator facilities. EOCs are now heavily used for each major wildfire event to help with coordination, to monitor weather, and to provide fire mapping compared to system facilities. Cal Water has also conducted EOC training with municipalities in our service territories to help allow for better coordination in a future wildfire or emergency event.

Additionally, Cal Water is seeking to better understand the true impact of a wildfire on a water system. These systems were designed for local fire code, but not designed to wildfire demand, where instead of a single structure and a couple fire hydrants being used, an entire zone and many fire hydrants can be operated simultaneously. The experience from the Woolsey Fire shows that a system that was designed for normal fire flow conditions could be counted on for prolonged high flow response, yet with significant manual operating processes to meet the high demand.

Q. What costs could Cal Water incur in worst case wildfire events?

A. It is difficult to estimate the total value of the theoretical costs, but the potential damage could be substantial. If a wildfire damages water pumping facilities, or worst case, large portions of a service territory, the damages could reach into hundreds of millions of dollars to replace the facilities, and properly disinfect the water system to re-establish clean water and pressures to customers. With the Paradise Fire, benzene was found in the water system, thus leading to hundreds of millions of dollars in costs to replace customer service lines, as well as the risk of dangerous water quality levels to customers.

Each wildfire event also involves the cost of mass interruption to the company to provide support, resources, and equipment to protect against the wildfire(s), all of which take away from the normal responsibilities of maintaining and operating the water systems.

Q. Even if Cal Water performed consistent with all regulatory requirements, are there factors that remain out of its control?

A. Even with proper planning, there are still factors that remain out of Cal Water's control. First, there is risk that the power could go out due to maintenance, and unplanned event (e.g., lightning strike or vehicle accident involving power equipment), PSPS or a wildfire event that prevents the pumping of water. Backup generators are in place in many critical plant locations, and portable generators can be moved into place, but these are not immediately available in all areas, may not be available in time, or may not be able to be delivered due to circumstances of the event, leaving some areas at risk.

Additionally a wildfire could damage the only facilities that provide water flow to an area. If there are not additional facilities, or the ability to move water to that area, this would prevent the ability to assist in fighting a wildfire.

Finally, the duration of a wildfire event could significantly impact a response. If the wildfire is of a duration long enough to drain tank supply, or of a nature that burns further areas and facilities that don't have other available supplies, this would limit the ability to respond to the wildfire event.

With the increasing potential for wildfire in the State of California, coupled with Cal Water's location in so many different geographical areas in far ranging districts increases the likelihood of impact to a Cal Water system. The associated risks of operating in these urban/wildfire interface areas in very high fire threat locations significantly increases with each fire season.

Q. Does this conclude your testimony?

A. Yes.