BDR 40-716
AB 193

NON-EXECUTIVE AGENCY

FISCAL NOTE

AGENCY'S ESTIMATES

Date Prepared: March 1, 2017

Agency Submitting: Truckee Meadows Water Authority

Items of Revenue or Expense, or Both	Fiscal Year 2016-17	Fiscal Year 2017-18	Fiscal Year 2018-19	Effect on Future Biennia
Capital Improvements (Expense)		$67,000,000		
Annual Operation and Maintenance (Expense)		$3,000,000	$3,000,000	$3,000,000
Total	0	$70,000,000	$3,000,000	$3,000,000

Explanation (Use Additional Sheets of Attachments, if required)

Fluoridating the Truckee Meadows Water Authority's (TMWA) water supply will require the construction of new capital equipment and annual operation and maintenance expenses, the cost of which will be borne by customers through rate increases. (See attachments for details)

Name Mark Foree

Title General Manager

Exhibit 1

DESCRIPTION OF FISCAL EFFECT

BDR/Bill/Amendment Number: BDR 40-716, AB193

Name of Agency: Truckee Meadows Water Authority

Division/Department:

Date: March 1, 2017

Items of Revenue or Expense, or Both	Fiscal Year 2017-18	Effect on Future Fiscal Years
Capital Improvements (Expense)	$ 67,000,000.00	Debt Service ($5.3 million/yr for 20 yrs)
Annual Operation and Maintenance (Expense)	$ 3,000,000.00	$ 3,000,000 +
Total	$ 70,000,000.00	$8,300,000/yr
Customer Rate Increase Required to Finance Expenses	9.0%	

TMWA has an extensive and diverse water production network that includes two surface water treatment plants, three groundwater treatment plants, one future surface water treatment plant, and seventy-seven (77) groundwater production wells. With few exceptions, when TMWA's groundwater production wells are being utilized, they discharge directly into the distribution system creating a water quality sphere of influence within the distribution system. TMWA relies heavily on conjunctive use management to maximize efficiency in water supply and utilizes their groundwater production wells for over 15% of their total average annual water production for the system in non-drought years, and a higher percentage in drought years. TMWA's production wells form an integral part of their combined regional and local distribution systems, including some isolated distribution systems, which could only be served by a fluoridated source if their wells were equipped with fluoridation treatment. Because of the interconnectivity of its system, in order for TMWA to maintain the minimum permissible concentration of fluoride of 0.7 part per million in all water supply in the distribution system accordance with NAC 445A.6682, all treatment plants and well production facilities need to be equipped with fluoridation equipment.

Based on a third party capital and operations and maintenance cost estimate review, TMWA would be required to incur an estimated capital expense of $67,000,000 to design and install all facilities necessary for chemical storage and supply of fluoridated water in TMWA's production system in order to comply with AB 193. This includes installation of fluorosilicic acid treatment equipment for TMWA's primary surface water production facilities at Chalk Bluff and Glendale, and installation of sodium fluoride up-flow saturators at TMWA's wells, the Longley Lane Treatment plant and the future South Meadows Treatment plant. In addition, based on third party estimates TMWA would be required to incur an initial estimated annual operation and maintenance expense of $3,000,000 for chemical costs, maintenance costs and labor costs to operate and maintain fluoridation systems and compliance with CDC recommended fluoridation training and system testing and reporting, which costs are anticipated to increase over time.

TMWA would be required to debt finance these expenses. As an enterprise fund, TMWA would be required to recover these costs from customers. TMWA estimates customer rates would need to be raised 9% to service the debt financing and operational cost required to comply with AB 193.

TMWA anticipates it may take several years to bring its system into compliance due to the number of groundwater well facilities, current property constraints that could require acquisition or condemnation of land and easements, and land use/permitting approvals.

DESCRIPTION OF FISCAL EFFECT

BDR/Bill/Amendment Number: BDR 40-716, AB193

Name of Agency: Truckee Meadows Water Authority

Division/Department:

Date: March 1, 2017

Category Type	Items of Revenue or Expense, or Both	Fiscal Year 2016-17	Fiscal Year 2017-18	Fiscal year 2018-19	Effect on Future Biennia
Expense	Capital Improvements	$0	$67,000,000	Debt Service (per year for 20 yrs)	Debt Service (per year for 20 yrs)
Expense	Annual Operation & Maintenance	$0	$3,000,000	$3,000,000	$3,000,000
	Total	$0	$70,000,000	$8,300,000/yr	$8,300,000/yr

DESCRIPTION OF FISCAL EFFECT

BDR/Bill/Amendment Number: BDR 40-716, AB193

Name of Agency: Truckee Meadows Water Authority

Division/Department:

Date: March 1, 2017

Memorandum

TO: Mark Foree, General Manager
FROM: Michele Sullivan, CFO
DATE: February 22, 2017
SUBJECT: **Cost to Customer for fluoridation based on cost estimates from One Water Consulting**

Based on the most recent estimates received from One Water Consulting I have calculated an approximate cost to Truckee Meadows Water Authority (TMWA) customers for water fluoridation. TMWA will need to finance the $67 million capital cost. A 20 year bond offering for $67 million will require annual debt service of approximately $5.3 million. One Water Consulting has estimated the annual Operating and Maintenance costs for TMWA to fluoridate water at $3.0 million. Given both of these expenses, the annual cost to TMWA's customers will be $8.3 million.

TMWA treated 26,659,970 thousand gallons of water in 2016. About 10% of water treated is not delivered to customers, therefore, we would spread the cost of treatment over 23,993,973 thousand gallons of water delivered. This calculation results in a cost of $0.35 per thousand gallons ($8.3 million/23,993,973). The average residential customer uses about 134.35 thousand gallons of water annually. This means that in order to cover the cost of fluoridation, the average customer will pay about $47 a year, or $3.90 a month.

Because recurring revenue needs to cover the cost of service to customers, we will need an increase in rates to cover the additional annual costs of $8.3 million for fluoridation. Operating revenues were $91.9 million in fiscal year 2016. To generate an addition $8.3 million in operating revenue we will need to increase rates by 9% ($8.3 million/$91.9 million).

DESCRIPTION OF FISCAL EFFECT

BDR/Bill/Amendment Number: BDR 40-716, AB193

Name of Agency: Truckee Meadows Water Authority

Division/Department:

Date: March 1, 2017

Memorandum

To: Mark Foree, P.E.
General Manager
Truckee Meadows Water Authority

From: Michael Wilkin, P.E.
Principal Engineer
One Water Consulting

Date: February 22, 2017

Re: Truckee Meadows Water Authority Water Fluoridation Cost Estimate Analysis

Introduction:

Truckee Meadows Water Authority requested One Water Consulting perform a water fluoridation capital and operations and maintenance (O&M) cost estimate review of Stantec Consulting's *Water Fluoridation Analysis* report dated October 31, 2016, relative to the recently proposed Assembly Bill 193 (A.B. 193) which requires the fluoridation of water in certain circumstances.

Background:

The project manager and principal in charge of the Stantec Water Fluoridation Analysis report, Mike Wilkin PE, is the current principal engineer for One Water Consulting. As the project manager and principal in charge at Stantec, Mr. Wilkin was involved in directing the initial fluoride cost analysis efforts by Stantec, and participated in the initial discussions with TMWA and Washoe County District Health surrounding the analysis for potential fluoridation of TMWA's water supply. TMWA originally contracted with Mr. Wilkin and Stantec, on September 7, 2016, to provide a preliminary water fluoridation analysis, including a preliminary cost estimate, of eighty-one (81) of TMWA's water production facilities, which included four surface water treatment plants (one future), the Fish Springs Ranch Terminal Tank facility, and seventy-six (76) groundwater production wells. With the formation of One Water Consulting by Mr. Wilkin in January 2017, TMWA requested that Mr. Wilkin (and One Water Consulting) continue to provide water fluoridation analysis, cost refinements, and review of A.B. 193 implications to TMWA.

A.B. 193 Review:

- **Sec. 1**: "NRS 445A.050 is hereby amended to read as follows: 445A.050 The provisions of NRS 445A.025 to 445A.050, inclusive, do not apply to: 1. A public water system that serves a population of 100,000 or more in a county whose population is [~~700,000~~] 100,000 or more 2. A water authority, as defined [pursuant to] in NRS 377B.040, and any political subdivision that

receives all or a part of its water supply from such a water authority in a county whose population is [~~700,000~~] 100,000 or more.

Analysis: TMWA is currently prohibited from fluoridating its water supply due to the existing statute that requires voter approval. Changing the county population requirement for mandatory fluoridation of a water supply by a water authority from 700,000 to 100,000 would require TMWA to fluoridate their water supply.

Water Fluoridation Cost Estimate Review:

The Stantec *Water Fluoridation Analysis* report included an assessment of capital and O&M costs for installing fluoride treatment equipment at TMWA's water production and supply facilities and provided for a TMWA-typical 30-day chemical storage inventory at each site. Potential fiscal impacts to TMWA from the proposed A.B. 193 would include:

- **Sec. 2 2**: "The regulations must include, without limitation: (a)(1) The minimum permissible concentration of fluoride must not be less than 0.7 parts per million; and (2) The maximum permissible concentration of fluoride must not exceed 1.2 parts per million;"

Analysis: TMWA has an extensive and diverse water production network that includes two surface water treatment plants, three groundwater treatment plants, one future surface water treatment plant, and seventy-seven (77) groundwater production wells. With few exceptions, when TMWA's groundwater production wells are being utilized, they discharge directly into the distribution system creating a water quality sphere of influence within the distribution system. For TMWA to maintain a 0.7 part per million fluoride concentration, without limitation, within the distribution system all well production facilities need to be fluoridated.

- **Sec. 3**: "The State Board of Health shall not require the fluoridation of: (a) The wells of a public water system or water authority if: (1) The groundwater production of the public water system or water authority is less than 15 percent of the total average annual water production of the system or authority for the years in which drought conditions are not prevalent: and (2) The wells are part of a combined regional and local system for the distribution of water that is served by a fluoridated source."

Analysis: TMWA utilizes their groundwater production wells for over 15% of their total average annual water production for the system in non-drought years and potentially higher percentages in drought years. An example of this would be the most recent production year, 2016, when TMWA used 83.4% surface water and 16.6% groundwater. Due to the nature of TMWA's diverse and widely dispersed water production and distribution facilities, constraining their groundwater production to less than 15% of total production in non-drought years without being in violation will be extremely difficult to achieve and limiting to operational flexibility. Per Sec. 3, the wells would need to be part of a combined regional and local system for the distribution of water that is served by a fluoridated source. TMWA's production wells form an integral part of their combined regional and local distribution systems, including some isolated distribution systems, that could only be served by a fluoridated source if their wells were equipped with fluoridation treatment. Sec. 3 would not relieve TMWA from the requirement to fluoridate all well production facilities.

- **Sec. 5**: "The State Board of Health shall make an exception to the minimum permissible concentration of fluoride to be maintained in a public water system or water authority in a county whose population is 100,000 or more but less than 700,000 pursuant to a request submitted by a public water system or water authority because the demand for water by residents of the regulated area requires it to change the production of the system or authority temporarily to include unfluoridated groundwater. An exception made pursuant to this

subsection must not exceed the period from May 1 to October 31 of the year for which the exception is requested."

Analysis: It is not atypical for TMWA to operate wells beyond the period of May 1 to October 31 of any year for a variety of reasons relative to normal operations, and therefore cannot be limited to well operation during this period only. TMWA will need to fluoridate all groundwater sources to meet the 0.7 part per million requirement and provide no unfluoridated water between October 31 and May 1 of each year.

- **Capital Costs**: The previously prepared *Water Fluoridation Analysis* provided a capital cost of $60,596,500 for all facilities for design and installation of a TMWA-typical 30-day chemical storage for supply of fluoride and associated treatment equipment. Stantec's cost estimate includes a 40% contingency, which is appropriate since these cost estimates are being produced prior to any actual design work being performed.

Analysis: Although initial discussions between Stantec and TMWA resulted in the original 30-day storage volume requirement used for cost estimation, the CDC recommends "*Storage should be provided for at least a 3-month supply of fluoride chemical to minimize the effect of a possible fluoride chemical shortage.*" One Water Consulting recommends TMWA utilize a 90-day fluoride storage planning period for capital cost estimation since it's impossible to determine how current and future regulators will interpret the CDC guidelines, and TMWA needs to include all foreseeable potential costs in the current capital cost estimate. Prior to any true design effort, the financial impacts from providing a 90-day supply versus the 30-day supply will be difficult to quantify. However, there will most probably be an increase in the estimated costs previously calculated, and One Water Consulting recommends that a 10% increase, to approximately $67,000,000, be utilized for estimating capital costs prior to any actual design occurring to accommodate the potential required increase in storage capacity.

Treatment requirements for TMWA's primary water production facilities, Chalk Bluff, Glendale, and the Fish Springs water supply project at the Terminal Tank, are recommended to utilize fluorosilicic acid (FSA) for treatment due to the storage volumes required, and lower chemical costs. The peak month water production rate used for cost estimation purposes is 120, 45, and 12 MGD respectively, for a total combined maximum production rate of 177 MGD. A 90-day FSA storage supply for Chalk Bluff would require 34,400 gallons, Glendale would require 12,900 gallons, and the Terminal Tank would require 3,600 gallons of acid storage. It should be noted that FSA is a very hazardous chemical, and there would be increased safety concerns for the public during shipping, and for TMWA staff during daily operations and chemical handling procedures with this chemical. The estimated capital costs for these three facilities is $7,500,000, including the 10% increase for 90-day chemical storage.

Treatment requirements for TMWA's wells and the existing Longley Lane water treatment plant (WTP) and future South Meadows WTP are recommended to utilize a dry chemical, sodium fluoride, in up-flow saturators for treatment due to the smaller volumes required, increased safety factors for shipping and handling, stable shelf life, and a lower maintenance potential. Sodium Fluoride is a hazardous chemical, and will also present safety concerns for shipping, as well as contact and inhalation hazards for TMWA staff. The estimated capital costs for these 79 facilities is $59,500,000, including the 10% increase for 90-day chemical storage.

- **O&M costs**: The previously prepared *Water Fluoridation Analysis* report provided an Annual O&M cost of approximately $3,000,000 ($2,978,400) for all facilities.

Analysis: Manpower, chemical costs, and maintenance costs are included in the O&M costs provided by Stantec. Since the previous report however, TMWA has revised and reduced their burdened labor rate from $87.50 to $66.25/hr. The total annual manpower estimate in the report is 16,350 hours, or $1,430,625 in labor costs for all facilities. This is reduced (-$347,438) to $1,083,188 using the new burdened labor rate. However, this does not include additional CDC recommended fluoridation training and monitoring requirements, which requires daily system testing and monthly reporting. One Water Consulting recommends TMWA add one additional full time equivalent employee (2080 hrs./annum) to the manpower estimate for an additional $137,8000 annually for fluoride monitoring and reporting, and an equal dollar value for increased laboratory costs.
O&M requirements for TMWA's primary water production facilities, Chalk Bluff, Glendale, and the Fish Springs water supply project at the Terminal Tank, identified in the report, are estimated to be $1,100,000 per year, including labor. O&M requirements for TMWA's wells and the existing Longley Lane water treatment plant (WTP) and future South Meadows WTP, identified in the report, are estimated to be $1,625,000 per year, including labor. Additional O&M costs for fluoride monitoring and reporting should be minimally estimated to be $275,000 per year, including labor, for a total estimated annual O&M cost of $2,930,000, or remaining at the previously identified approximately $3,000,000 annually, including the additional manpower and laboratory costs.

Recommendations

- Use a Capital Cost Estimate of $67,000,000 to achieve 100% Compliance with minimum fluoride concentration of 0.7 mg/L throughout the distribution system by fluoridating at all of TMWA's production and supply facilities.

- Use an Annual O&M Cost Estimate of $3,000,000.