Recommendations for Deferring Variance for Significant Water Use of Home Use Medical Devices

WUES-DWR-2021-06

A Report to the State Water Resources Control Board Prepared Pursuant to California Water Code Section 10609.14

August 2022

California Department of Water Resources
Water Use Efficiency Branch

Note: This report is part of the package of reports developed by the California Department of Water Resources to meet the requirements of Senate Bill 606 and Assembly Bill 1668 of 2018 for urban water use efficiency.

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Table Of Contents

Figures

Appendices

Abbreviations and Acronyms

2018 Legislation	2018 Legislation on Water Conservation and Drought Planning (Senate Bill 606 [Hertzberg] and Assembly Bill 1668 [Friedman], as amended)
CDC	Centers for Disease Control and Prevention
CII	commercial, industrial, and institutional
CII-DIMWUS	Commercial, Industrial, and Institutional Outdoor Irrigation of Landscape Areas with Dedicated Irrigation Meters Water Use Efficiency Standard
DIM	dedicated irrigation meter
DWR	California Department of Water Resources
gpd	gallons per day
HD	hemodialysis
IRWUS	Indoor Residential Water Use Efficiency Standard
JAMA	Journal of the American Medical Association
ORWUS	Outdoor Residential Water Use Efficiency Standard
PD	peritoneal dialysis
Recommendation Package	Urban Water Use Efficiency Recommendation Package
SB	Senate Bill
State	State of California
State Water Board	State Water Resources Control Board
USRDS	United States Renal Data System
UWUO	urban water use objective
WC	California Water Code
WLS	Water Loss Standard

Executive Summary

The California State Legislature passed the 2018 Legislation on Water Conservation and Drought Planning (Senate Bill 606 [Hertzberg] and Assembly Bill 1668 [Friedman], as amended; hereinafter referred to as the "2018 Legislation"), which included provisions for advancing urban water use efficiency through developing and implementing various water use efficiency standards, variances, and performance measures. The California Water Code (WC) specifically called for investigation of a potential variance for "significant use of evaporative coolers," which is against the Indoor Residential Water Use Efficiency Standard. The stakeholder process for this potential variance identified water use by other home use devices, such as medical devices, could be a unique use and, if proven substantial in use volume, should be considered as a potential variance. This report provides the purpose and details of review and development, and the recommendations for a variance for "significant water use of home use medical devices," consistent with the directives under WC Section 10609.14.

WC Section 10609.14 directs the California Department of Water Resources (DWR), in coordination with the State Water Resources Control Board (State Water Board), to conduct necessary studies and recommend appropriate variances for unique uses of water that could have a material effect on an urban retail water supplier's urban water use objective (UWUO). The consideration of a variance for "significant water use of medical devices" is derived from one of the eight potential variances identified in the legislation. For each variance, the recommendations include a threshold of significance and guidelines and methodologies for calculating efficient water use allowable under the variance.

DWR conducted topic-specific research and investigations to answer three critical questions prior to developing recommendations for a variance for significant water use of home use medical devices:

1. Is this water use outside of the scope of the UWUO? In other words, is this water for non-urban use or part of the commercial, industrial, and institutional (CII) water uses other than irrigating landscape with dedicated irrigation meters? If so, the water use is either not subject to the provisions of urban water use efficiency in the 2018 Legislation or excluded from the UWUO and, thus, there is no need for a variance.

2. Is this water use unique within the context of the UWUO? If no, it is not eligible. If yes, the water use is potentially eligible for a variance. The following two questions need to be answered "yes" to be determined eligible:

a. Is this water use shared by only some urban retail water suppliers or needed in unusual circumstances, but not commonly used enough to be included in one of the standards?

b. Is this water use excluded from all urban water use efficiency standards and other variances?

3. Could this unique water use have a material effect on the UWUO of some urban retail water suppliers? If so, the water use is warranted for variance development.

Consistent with the legislative directive, DWR used a public process involving a diverse group of stakeholders in the review of the potential variance for significant water use of home use medical devices. The Water Use Studies Working Group and the Standards, Methods, and Performance Measures Working Group that DWR established to assist in implementing the 2018 Legislation were the primary stakeholders involved in the variance development process. Additional stakeholders included State of California agencies, cities, counties, urban retail water suppliers, environmental organizations, and other interested parties. Working group members and stakeholders were provided with many opportunities to comment on and inform the appropriateness of the recommendation for significant water use of home use medical devices. Note that the water use for medical centers, clinics, and treatment centers are CII water use excluded from the UWUO.

Through investigation of available data and stakeholder input, it is evident that with technology advancement and changes in the healthcare system, the popularity of home use medical devices is increasing. DWR has concluded that water for home use medical devices is a unique water use; however, the level of use is currently not prevalent enough to have a material effect on an urban retail water supplier's UWUO. Therefore, establishing a variance for the efficient water use of home use medical devices is not warranted at this point in time. DWR recommends deferring the recommendation for this vaiance until the use becomes more prevalent and results in a material effect on the urban retail water supplier's UWUO.

The recommendation for deferring a variance for significant water use of home use medical devices is part of the *Recommendations for Urban Water Use Efficiency Standards, Variances, Performance Measures, and Annual Water Use Reporting* (WUES-DWR-2021-01A). The recommendations were prepared per the requirements of the 2018 Legislation and are to be transmitted to the State Water Board for adoption.

1.0 Introduction

Senate Bill (SB) 606 (Hertzberg) and Assembly Bill 1668 (Friedman) of 2018, as amended (hereinafter referred to as the "2018 Legislation"), established a new foundation for long-term improvements in water conservation and drought planning to adapt to climate change and the resulting longer and more intense droughts in the State of California (State). These two bills provide expanded and new authorities and requirements to enable permanent changes and actions for those purposes, thereby improving the State's water future for generations to come. Details of these provisions are summarized in *Making Water Conservation a California Way of Life: Primer of 2018 Legislation on Water Conservation and Drought Planning, Senate Bill 606 (Hertzberg) and Assembly Bill 1668 (Friedman)* (DWR and State Water Board, 2018).

1.1 New Approach to Urban Water Use Efficiency

Among other things, the 2018 Legislation contains provisions for advancing urban water use efficiency through developing and implementing various water use efficiency standards, variances, and performance measures per California Water Code (WC) Section 10609. The new water conservation framework is different than SB X7-7, which was established in 2009. The focus of SB X7-7 was to reduce statewide urban water use by 20 percent in 2020 compared to 2010. The 2018 Legislation requires a bottom-up estimate from urban retail water suppliers of the urban water use objective (UWUO) based on the aggregated efficient water use volume by considering four urban water use efficiency standards and appropriate variances. The four standards are:

- Indoor Residential Water Use Efficiency Standard (IRWUS).
- Outdoor Residential Water Use Efficiency Standard (ORWUS).
- Commercial, Industrial, and Institutional Outdoor Irrigation of Landscape Areas with Dedicated Irrigation Meters Water Use Efficiency Standard (CII-DIMWUS).
- Water Loss Standard (WLS).

Commercial, industrial, and institutional (CII) water use not associated with dedicated irrigation meters (DIM) (or equivalent technologies) for outdoor irrigation of landscape areas is excluded from the UWUO.

Each of the procedural requirements to formalize these four standards for implementation is different. The 2018 Legislation includes a default progressively reduced IRWUS (WC Section 10609.4(a)). In November 2021, in collaboration with the State Water Resources Control Board (State Water Board), the California Department

of Water Resources (DWR) submitted the joint recommendations for IRWUS to the California State Legislature for further consideration per WC Section 10609.4(b). Separately, the State Water Board is currently conducting a rulemaking process to adopt the proposed WLS, which was originally authorized by SB 555 of 2015. For ORWUS and CII-DIMWUS, the 2018 Legislation requires DWR, in coordination with the State Water Board, to conduct necessary studies and investigations and make recommendations to the State Water Board by October 1, 2021 (WC Sections 10609.6 and 10609.8).

Another major difference between the SB X7-7 requirements and those of the 2018 Legislation is that the anticipated outcome was measured on a statewide level per SB X7-7 and on an individual urban retail water supplier level per the 2018 Legislation. Recognizing the diversity of water use to support local economic, social, and environmental needs and varying climate conditions in the State, the 2018 Legislation requires DWR, in coordination with the State Water Board, to conduct necessary studies and investigations. It also requires DWR to develop recommendations for adoption by the State Water Board by October 1, 2021, for appropriate variances for unique uses that can have a material effect on an urban retail water supplier's UWUO and the corresponding thresholds of significance (WC Section 10609.14). In this context, DWR interpreted that a material effect means that this unique water use, although used in an efficient manner, could unfairly jeopardize an urban retail water supplier's ability to meet the UWUO when not explicitly addressed and calculated separately from the volume based on the four water use efficiency standards.

As a supporting recommendation, the 2018 Legislation requires DWR to develop accompanying guidelines and methodologies for calculating the UWUO (WC Section 10609.16) and provide the recommendation to the State Water Board for adoption, along with DWR's recommendations on ORWUS, CII-DIMWUS, and appropriate variances by June 30, 2022 (WC Section 10609.2). The 2018 Legislation further requires DWR and the State Water Board to solicit broad public participation throughout the development and adoption processes (WC Section 10609(b)(3)).

1.2 Appropriate Variances

Per the 2018 Legislation, appropriate variances **may include, but are not limited to**, the following eight identified in WC Section 10609.14(b):

1. Significant use of evaporative coolers.
2. Significant populations of horses and other livestock.
3. Significant fluctuations in seasonal populations.

4. Significant landscaped areas irrigated with recycled water having high levels of total dissolved solids.
5. Significant use of water for soil compaction and dust control.
6. Significant use of water to supplement ponds and lakes to sustain wildlife.
7. Significant use of water to irrigate vegetation for fire protection.
8. Significant use of water for commercial or noncommercial agricultural use.

The eight identified potential variances were subject to further review to affirm the unique use and the likelihood of a material effect on an urban retail water supplier's UWUO before DWR engaged in additional efforts in variance development. Through stakeholder engagement, additional potential variances could also be identified. Potential variances may also emerge in the future due to changes in water use to meet economic, social, and environmental needs.

Significant use of evaporative coolers was first in the WC list of variances to be studied and discussed by the working groups. The initial conversation with the working groups about this specific variance was the starting point to consider that, in addition to evaporative coolers, there are other classes of home devices that could potentially use significant amount of water to operate. Some working group members identified home use medical devices as a potential variance to consider because their use is increasing, and the associated water use could have a material effect on the UWUO for urban retail water suppliers. Therefore, significant use of water by medical devices at home was considered as a potential variance.

When a recommended variance is adopted by the State Water Board, the variance becomes available to urban retail water suppliers. However, before a variance can be included in an urban retail water supplier's UWUO, the urban retail water supplier is required to request, with supporting data, and receive approval from the State Water Board (WC Section 10609.14(d)). This procedural requirement is urban retail water supplier–specific and variance-specific. The State Water Board is required to post on its website a list of approved variances, the specific variances approved for each urban retail water supplier, and the data requirement supporting the approval of each variance for individual urban retail water suppliers (WC Section 10609.14(e)).

1.3 Purpose of the Report

Per legislative requirements, DWR conducted studies and investigations to determine if the legislatively identified potential variances and others suggested by stakeholders should be developed and recommended for adoption. This report is one of the variance-

specific reports that focuses on the potential variance for significant water use of home use medical devices identified by stakeholders.

Water Use of Home Use Medical Devices

The number of medical devices used in home healthcare is increasing for various reasons. Although most of home use medical devices are simple tools that do not need special training or maintenance, some require significant use of energy and water to run on a regular basis. Dialyzers are good examples for those devices that require a lot of water for proper operation and cleaning. However, the water use of these machines is highly variable depending on the technology, type of dialysis, and frequency of use per prescriptions, among other variables. Therefore, it is crucial to carefully review the scope of the variance for significant water use of home use medical devices to assess the unique use and potential material effect on the urban retail water supplier's UWUO.

Relationship to California Department of Water Resources' Urban Water Use Efficiency Recommendation Package

DWR has completed a significant body of work to meet the requirements of the 2018 Legislation and provide recommendations on different topics to the State Water Board for adoption. To streamline document development and recognize the inherent interrelationship among different topics and the need for overall consistency, DWR organized the various reports in an Urban Water Use Efficiency Recommendation Package (Recommendation Package) that allows mutual referencing and incorporates content by reference. All reports in this Recommendation Package are given a serial number in the form of "WUES-DWR-2021-xx." For each report, Appendix A includes the list of documents within the Recommendation Package that are incorporated by reference.

Specifically, this report, *Recommendations for Deferring Variance for Significant Water Use of Home Use Medical Devices* (WUES-DWR-2021-06), provides the analysis supporting the recommendation for deferring a potential variance for significant water use of medical devices only. The recommendations for this variance were summarized in the report, *Summary of Recommendations for Variances* (WUES-DWR-2021-04), which also includes recommendations for procedures and protocols for considering variances in the future. Key terms and their definitions used in this report, along with abbreviations and acronyms, are included in *Urban Water Use Efficiency Recommendation Package: Glossary and Abbreviations and Acronyms* (WUES-DWR-2021-21).

Effects on Existing Law and Regulations

DWR developed this variance per legislative directive. The resulting recommendations, when adopted, does not set, rescind, or modify existing or future requirements for using home use medical devices.

1.4 Report Organization

This report is organized into five sections:

- **Section 1 – Introduction** provides the background and purpose of this document.
- **Section 2 – Scope Definition** provides the process and rationales used in confirming the scope for this potential variance that reflects unique water use with potential material effects on an urban retail water supplier's UWUO.
- **Section 3 – Recommendations** provides DWR's recommendations on deferring this variance for future consideration.
- **Section 4 – Glossary** provides a list of key terms and their definitions used in this document.
- **Section 5 – References** provides a list of references that are used in this study.

This report includes one appendix:

- **Appendix A** provides the list of documents in DWR's Recommendation Package that are incorporated by reference.

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2.0 Scope Definition

In accordance with the legislative directive, DWR conducted studies and investigations to develop the information necessary to determine if a variance for using medical devices at home was needed and, if so, to support any recommendation made to the State Water Board on the guidelines and methodologies pertaining to the calculation of an urban retail water supplier's UWUO.

The goals of these studies and investigations were to achieve the following:

- Confirm whether significant use of water in home use medical devices is a unique use that could have a material effect on the UWUO of urban retail water suppliers.
- Inform the recommendations for variance specifications, including the threshold of significance.
- Provide the basis for developing guidelines and methodologies for urban retail water suppliers to use in calculating the aggregated efficient water use allowable under this variance.

The first study goal provided a clarified scope for variance development, which was to be accomplished by addressing the remaining two study goals. The process and findings for scope definition are provided in Section 2. Sections 3 contains the recommendations.

2.1 Interpretation of Home Use Medical Devices Nexus

Running water is critical to the use of certain home use medical devices. Some medical devices and equipment, such as dialyzers or infusion pumps, require safe water during use, cleaning, and maintenance. Even if water is not required for a device to operate, it may be necessary for cleaning its accessories. According to a research published in Journal of American Medical Association (JAMA) Internal Medicine (Pravoverov et al., 2019), the rate of people starting voluntary at-home peritoneal dialysis rose from 15 percent to 34 percent over 10 years at Kaiser Permanente in Northern California. Through research and stakeholder group consultation, DWR recognized the use of home use medical devices may be a significant water use relative to the UWUO of an urban retail water supplier. Since home dialysis machines have the highest water use among the regular home use medical devices (up to 600 liters per week or 22.6 gallons per day [gpd], according to Centers for Disease Control and Prevention [CDC][2]),

[2] https://www.cdc.gov/dialysis/guidelines/water-use.html

research was conducted to understand the amount of water needed for this type of device and the level of use throughout the State.

2.2 Process for Scope Refinement

In the context of the 2018 Legislation, the four water use efficiency standards cover types of water use commonly shared by most, if not all, urban retail water suppliers. The variances are effectively the less common uses that may be important for only some urban retail water suppliers due to geographic location, local climate, and other local conditions. In concept, the scopes of standards and those of variances are mutually exclusive. However, local water use, facility connections, and account management can be complex due to years of development and implementation of practices without the structure suggested in the 2018 Legislation. Therefore, DWR needed to examine different scenarios associated with water use by home use medical devices against three questions in sequence prior to developing variance recommendations:

1. Is this water use out of the scope of the UWUO? In other words, is this water for non-urban use or part of the CII water uses other than irrigating landscape with DIMs? If so, the water use is either not subject to the provisions of urban water use efficiency in the 2018 Legislation or excluded from the UWUO and, thus, there is no need for a variance.

2. Is this water use unique in the context of the UWUO? If no, it is not eligible. If yes, the water use is potentially eligible for a variance. The following two questions need to be answered “yes” to be determined potentially eligible:

    a. Is this water use shared by only some urban retail water suppliers or needed in unusual circumstances, but not commonly used enough to be included in one of the standards?

    b. Is this water use excluded from all urban water use efficiency standards and other variances?

3. Could this unique water use have a material effect on the UWUO of some urban retail water suppliers? If so, the water use is warranted for variance development.

The following summarizes the results of the above process of elimination for clarifying the scope of the variance.

Unique Use

The unique use for variance consideration was established by addressing the first two questions listed above.

In April 2021, DWR conducted a survey regarding potential concerns over significant water use in home use medical devices. The survey was completed by 68 urban retail water suppliers in the State. About 25 percent of the participants mentioned that use of water for home use medical devices might be a significant use of water for their utilities. However, most of them expected that the effect would be less than 5 percent of their total water use. Only two urban retail water suppliers expected the use to be 5 to 16 percent of their total water use, although they clarified these expectations were not based on data.

Through communication with stakeholders, it was confirmed that none of them had data or supporting information regarding the water use of home use medical devices and the level of use in their service areas. A full discussion of stakeholder engagement is included in the report, *Stakeholder Outreach Summary for Developing Urban Water Use Efficiency Standards, Variances, and Performance Measures* [WUES-DWR-2021-20]. Therefore, DWR's research focused on published data and information provided by State, federal, or other managing agencies active in the field of medicine. Home use dialysis treatments were the primary focus due to their potential significant use of water for device operation and maintenance. Note that the water use for medical centers, clinics, and treatment centers (e.g., dialysis centers) are under CII water use excluded from the UWUO and the consideration of a variance.

Dialysis Type and Spread Across the State

There are two types of dialysis that a person can receive for treatment of end-stage kidney disease: peritoneal dialysis (PD) and hemodialysis (HD). According to the United States Renal Data System (USRDS) annual report 2020, which used 2018 data, there were approximately 9,500 PD patients and 70,000 HD patients in the State (Johansen et al., 2020; Reference Table D, tab D.16). See Figure 2-1 for the distribution of PD and HD patients in the State.

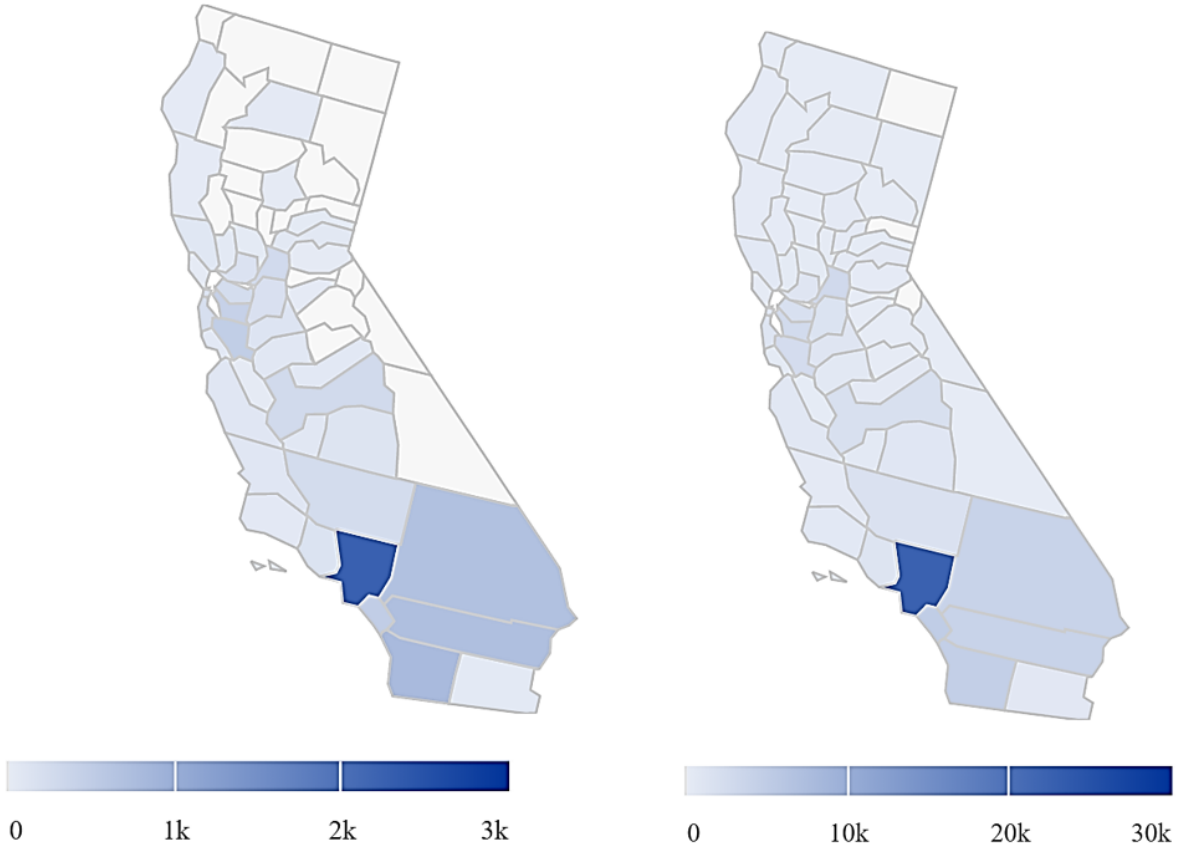
PD Treatment: There are three types of PD treatment, two of which can be performed at home using pre-prepared fluid packs. These fluid packs are provided by the medical or health center responsible for training a patient's treatment (personal communication; U.S. Department of Health and Human Services Agency for Healthcare Research and Quality, 2021). A healthcare center is a commercial or instititional setting, so this type of water use has no effect on residential indoor water use and is outside the scope of this variance.

HD Treatment: Based on the USRDS data, of the 70,000 HD patients in the State in 2018, only 767 received at-home HD treatment. Therefore, the water use for at-home HD treatments confirms the unique use that may be applied to some of the urban retail water suppliers.

This variance only includes use of medical devices at home; water use in a commercial or institutional setting is not a component of the urban retail water supplier's UWUO,

except for large landscapes irrigated with dedicated meters (refer to WUES-DWR-2021-03). Therefore, any form of significant use of water to run medical devices at medical and health centers is outside the scope of this variance.

Note that every person on dialysis is managed by a physician and cannot get the needed dialysate without a prescription and monitoring. Therefore, the USRDS data are considered reliable. Through communication with other agencies and research centers working on this matter (e.g., U.S. Department of Health and Human Services Agency for Healthcare Research and Quality, American Renal Associates, and Arbor Research Collaborative for Health), it was also noted that all of these agencies rely on the USRDS database to discuss the statistics about this subject.



Source: United States Renal Data System Data Query Tools, https://usrds.org/data-query-tools/esrd-incident-count/

Figure 2-1 Peritoneal Dialysis (left) and Hemodialysis (right) Count by County in 2018 in California

Potential for a Material Effect

For HD, water use is based on dialysate flow rate, session length, and dialysis frequency. According to the CDC,[3] water consumption for dialysis machines varies from 300 liters/week to 600 liters/week (11.3 to 22.6 gpd), depending on flow rate of dialysate and the percentage of water rejected during the reverse osmosis process. Other sources (Arbor Research Collaborative for Health; personal communication) believe the values range from 190 to 315 liters/week (7.1 to 11.9 gpd). Therefore, an estimate of the annual water requirement for a typical HD patient based on these numbers ranges from 9,880 liters/year to 31,000 liters/year (2,219 to 8,290 gallons per year).

According to USRDS data (767 home HD patients in 2018 in the State), the total average water demand by home HD patients across the State is about 15.7 million liters/year (414,750 gallons per year or about 1.3 acre-feet per year). While the additional amount of water use for home HD treatment may be significant on a household level, the currently established use statewide is still low.

Given that there are only estimated to be 767 total HD users in the State and given the associated water use of their medical devices, enough HD users in any urban retail water supplier's service area that could have a material effect on their UWUO is not currently supported. Considering that HD machines are the home use medical devices that are likely to have the highest water consumption, the same conclusion can be made about water consumption of all other home use medical devices.

Clarified Scope for Variance Development

Based on the above research and analysis, the variance for use of medical devices at home is considered a unique use for some of the urban retal water suppliers. However, the available information does not support the claim that home use medical devices could have a material effect on an urban retail water supplier's UWUO. Therefore, the subsequent variance development was suspended.

[3] https://www.cdc.gov/dialysis/guidelines/water-use.html

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3.0 Recommendations

Based on the analysis and stakeholder input, DWR's recommendations are as follows. Adoption of these recommendations by the State Water Board do not set, rescind, or modify existing or future requirements for use of water by home medical devices.

3.1 Recommendations for Deferring Variance for Significant Water Use of Home Use Medical Devices

DWR recommends that the variance for significant water use of home use medical devices be deferred for future consideration when the data suggests the prevalent use of home use medical devices could result in a material effect on an urban retail water supplier's UWUO. The future consideration of this potential variance should be consistent with the recommended protocols and procedures in the report, *Summary of Recommendations for Variances* (WUES-DWR-2021-04).

It is likely that the rate of home dialysis services will increase in the future. However, per personal communication with the U.S. Department of Health and Human Services Agency for Healthcare Research and Quality, increasing the usage rate does not necessarily mean increasing water consumption, because new devices are designed to be more water efficient. Therefore, for supporting the future reconsideration of this variance, it will be helpful for the urban retail water suppliers to collect data on the number of home use medical devices, their frequency of use, and their specific water needs in their service areas. DWR encourages the stakeholders to design a process for voluntary or mandatory data collection on use of home use medical devices from customers. Potential future design of a variance will benefit from a routinely updated database to better determine the magnitude of water use and its effect on an urban retail water supplier's UWUO.

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4.0 Glossary

The following key terms are listed below for easy reference. Where applicable, existing definitions from statutes and regulations are provided.

commercial, industrial, and institutional water use. Water used by commercial water users, industrial water users, institutional water users, and large landscape water users, as defined in California Water Code Section 10608.12(d).

commercial water user. A water user that provides or distributes a product or service, as defined in California Water Code Section 10608.12(e).

dedicated irrigation meter. A separate meter used in irrigation of outdoor landscape areas.

evaporative cooler. A device that cools air through the evaporation of water.

industrial water user. A water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development, as defined in California Water Code Section 10608.12(i).

institutional water user. A water user dedicated to public service. This type of user includes, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions, as defined in California Water Code Section 10608.12(j).

material effect. Having real importance or great consequences. In the context of California Department of Water Resources' recommendations regarding the urban water use objective and variances, a material effect is an effect on the urban water use objective that could influence the compliance status of an urban retail water supplier.

performance measures. Actions to be taken by urban retail water suppliers that will result in increased water use efficiency by commercial, institutional, and industrial water users. Performance measures may include, but are not limited to, educating commercial, institutional, and industrial water users on best management practices, conducting water use audits, and preparing water management plans. Performance measures do not apply to process water, as defined in California Water Code Section 10608.12(n).

threshold of significance. A minimum volume of unique water use in an urban retail water supplier's service area that could have a material effect on that urban retail water supplier's urban water use objective.

urban retail water supplier. A water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes, as defined in California Water Code Section 10608.12(t).

urban water use efficiency standards. The standards effective through California Water Code Section 10609.4 (indoor residential use) or adopted by the State Water Resources Control Board (outdoor residential, water loss, and commercial, institutional, and industrial outdoor irrigation of landscape areas with dedicated meters) pursuant to California Water Code Section 10609.2.

urban water use objective. An estimate of aggregate efficient water use for the previous year based on adopted water use efficiency standards and local service area characteristics for that year, as described in California Water Code Section 10609.20, as defined in California Water Code Section 10608.12(u).

water loss. The total of apparent loss and real loss (California Code of Regulations, Title 23, Section 638.1(a) and Section 638.1(k), respectively) in an urban water supplier's system. Apparent loss means loss due to unauthorized consumption and/or nonphysical (paper) loss attributed to inaccuracies associated with customer metering or systematic handling errors. Real loss means the physical water loss from the pressurized potable water system and the urban retail water supplier's potable water storage tanks, up to the point of customer consumption.

5.0 References

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Appendix A – Urban Water Use Efficiency Recommendation Package Reports Incorporated by Reference

DWR (California Department of Water Resources). Expected August 2022. Recommendations for Urban Water Use Efficiency Standards, Variances, Performance Measures, and Annual Water Use Reporting. DWR Report Number: WUES-DWR-2021-01A.

DWR (California Department of Water Resources). July 2022. Recommendations for Commercial, Industrial, and Institutional Outdoor Irrigation of Landscape Areas with Dedicated Irrigation Meters Water Use Efficiency Standard. DWR Report Number: WUES-DWR-2021-03.

DWR (California Department of Water Resources). July 2022. Summary of Recommendations for Variances. DWR Report Number: WUES-DWR-2021-04.

DWR (California Department of Water Resources). Expected August 2022. Stakeholder Outreach Summary for Developing Urban Water Use Efficiency Standards, Variances, and Performance Measures. DWR Report Number: WUES-DWR-2021-20.

DWR (California Department of Water Resources). Expected August 2022. Urban Water Use Efficiency Recommendation Package: Glossary and Abbreviations and Acronyms. DWR Report Number: WUES-DWR-2021-21.

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