

# Water Measurement and Reporting Regulation

Guidance Workshop



[DWR-Measurement@Waterboards.ca.gov](mailto:DWR-Measurement@Waterboards.ca.gov)

Division of Water Rights, December 2023



# Poll #1: Introduction

# Ground Rules

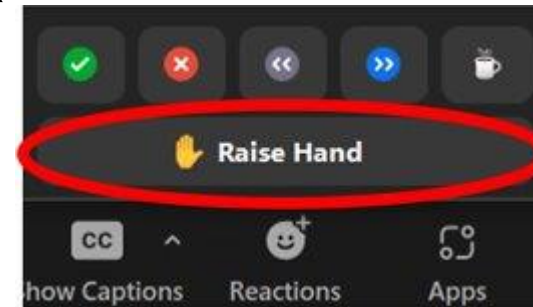
- 1. This is a public workshop**  
We're here to listen to and respect the perspectives and ideas shared
- 2. Listen actively and with an open mind**  
You can respect another person's point of view without agreeing with them
- 3. Stay on point and on time**  
Help give everyone the opportunity to be heard

## During the Staff Presentation

- Staff will be responding to questions in the “Q&A” feature

## During the Question and Answer Period

- Written questions can be submitted using the “Q&A” feature
- Use the “Raise Hand” feature (under Reactions, or dial \*9) if you would like to speak



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# Logistics

# Agenda

## Regulation Basics

- Why Is Diversion Data Needed?
- Background

## Requirements

- Who Is Subject
- How to Measure
- How to Report
- Qualified Individual

## Stakeholder Engagement

## New Guidance and Tools

- Measurement and Reporting Manual
- Datafile Templates
- FAQ Document

## Question and Answer Period



# Regulation Basics

# Why Is Diversion Data Needed?

- Evaluate water supplies and demands
  - Geographical and temporal variations
  - Sufficient supply in one region may occur concurrently with severe shortages elsewhere
  - Provides more robust dataset for comprehensive evaluation of statewide water use
- Inform water planning decisions
- Improve administration of water rights

# Background

- California Code of Regulations, Title 23, §§ 931-938
  - Approved in 2016
  - Often referred to as “SB-88” after the 2015 senate bill authorizing such legislation
- Requires applicable water right holders and claimants to measure and report their diversions
- Specifies frequency and accuracy requirements depending on the authorized diversion size



# Background (cont.)

- Applies to approximately 14,000 rights/claims (7,000 diverters)
- Data supplements and supports annual Water Diversion and Use Reports
- Allows flexibility between using measuring devices and measurement methods
  - Users may also propose for Alternative Compliance Plans if they meet required criteria



# Requirements

# Who Is Subject

| Type of Right  | Water Right ID First Letter      | Applicability Threshold  |
|--|----------------------------------|--|
| Statement<br>(Riparian or Pre-1914 Claim)  | S<br>(Ex: <u>S</u> 001234)       | <ul style="list-style-type: none"> <li>Maximum historical diversion &gt; 10 acre-feet per year</li> <li>OR</li> <li>Maximum future diversion &gt; 10 acre-feet per year</li> </ul> |
| Permit or License  | A, T<br>(Ex: <u>A</u> 012345)    | <ul style="list-style-type: none"> <li>Face value &gt; 10 acre-feet per year</li> </ul>  |
| Registration<br>(Domestic, Livestock, Small Irrigation, Cannabis)                                      | D, L, H<br>(Ex: <u>H</u> 004567) | <ul style="list-style-type: none"> <li>Face value &gt; 10 acre-feet per year</li> <li>OR</li> <li>Capacity of storage facility &gt; 10 acre-feet</li> </ul>                        |
| Multiple water rights or claims with the <i>same point of diversion</i><br>OR <i>same place of use</i> | A, D, H, L,<br>S, T              | <ul style="list-style-type: none"> <li>Sum of face values (or maximum historical or future diversion) &gt; 10 acre-feet per year</li> </ul>  |

# How to Measure



## MEASURING DEVICE

Any device that measures:

- Water volume
- Water flow rate
- Water velocity
- Water elevation



## MEASUREMENT METHOD

Any other way of determining the volume of water diverted per water right (usually involves extra math)



## ALTERNATIVE COMPLIANCE

Provides flexibility if strict compliance is not possible, but must still meet as many requirements as possible

# Poll #2: Measurement

# Measurement Frequency

| Diversion Type   | Volume Threshold           | Required Frequency                                  |
|--|----------------------------|---|
| <b><u>Direct Diversion:</u></b><br>Based on the face value or maximum annual historical use (whichever is greater) | More than 10,000 acre-feet | Hourly, plus <a href="#">telemetry requirements</a> |
|  | 1,000 to 10,000 acre-feet  | Hourly  |
|  | 100 to 999 acre-feet       | Daily   |
|  | 10 to 99 acre-feet         | Weekly  |
| <b><u>Diversion to Storage:</u></b><br>Based on the capacity of the storage facility                               | 10,000 acre-feet or more   | Hourly, plus <a href="#">telemetry requirements</a> |
|  | 1,000 to 9,999 acre-feet   | Hourly  |
|  | 200 to 999 acre-feet       | Daily   |
|  | 50 to 199 acre-feet        | Weekly  |
|  | 10 to 49 acre-feet         | Monthly   |

# How to Report

- Convert to volume
  - $Volume = Flow\ Rate * Duration$
  - $Volume = Water\ Velocity * Cross\ Sectional\ Area * Duration$
  - Provide any calculations and/or other formulas used
- Prepare a datafile of measurement and volumetric data for each water right
- Upload as an attachment to your Annual Water Diversion and Use Report
- Telemetry requirements: Must *also* post data to a publicly accessible website each week

# Datafiles

Date/Time

Units

Volume

Column Headings

| Date<br>(MM/DD/YYYY) | Time<br>(HH:MM<br>24hr) | Raw<br>Measurement<br>Value | Raw Unit of<br>Measurement | QA/QC<br>Measurement<br>Value | QA/QC Unit of<br>Measurement | Volume<br>Diverted | Volume<br>Diverted<br>Units | Data flags (optional; 200 char. max)                              |
|----------------------|-------------------------|-----------------------------|----------------------------|-------------------------------|------------------------------|--------------------|-----------------------------|---|
| 10/01/2022           | 15:28                   | 0.00                        | Gallons per minute         | 0.00                          | Gallons per minute           | 0.0000             | Acre-feet                   |   |
| 10/02/2022           | 14:02                   | 2.01                        | Gallons per minute         | 0.00                          | Gallons per minute           | 0.0000             | Acre-feet                   | Device reporting diversion when none occurred. Volume field shows |
| 10/03/2022           | 15:23                   | 0.00                        | Gallons per minute         | 0.00                          | Gallons per minute           | 0.0000             | Acre-feet                   |   |
| 10/04/2022           | 13:58                   | 0.00                        | Gallons per minute         | 0.00                          | Gallons per minute           | 0.0000             | Acre-feet                   |   |
| 10/05/2022           | 12:22                   | 0.00                        | Gallons per minute         | 0.00                          | Gallons per minute           | 0.0000             | Acre-feet                   |   |
| 10/06/2022           | 13:54                   | 174.57                      | Gallons per minute         | 174.57                        | Gallons per minute           | 0.8207             | Acre-feet                   |   |
| 10/07/2022           | 12:46                   | 210.67                      | Gallons per minute         | 210.67                        | Gallons per minute           | 0.8870             | Acre-feet                   |   |



# How to Report

# Datafile Practices to Avoid

| Water Transferred from South to North Reservoir (Permit 1) |               |                        |
|--|---------------|------------------------|
| Date   | Meter Reading | Water Transferred (AF) |
| January 1  | 675254        |                        |
| January 31   | 675254        | 0.00                   |
| February 28  | 675254        | 0.00                   |
| March 31   | 675254        | 0.00                   |
| April 30   | 675254        | 0.00                   |
| May 31   | 675254        | 0.00                   |
| June 1   | 675254        | 0.00                   |
| June 30  | 675254        | 0.00                   |
| July 31  | 683675        | 2.58                   |
| August 31  | 687956        | 1.31                   |
| September 30   | 687956        | 0.00                   |
| October 31   | 687956        | 0.00                   |
| November 30  | 687956        | 0.00                   |
| December 31  | 687956        | 0.00                   |
| Total  |               | 3.90                   |

(max = 32 af)

| Irrigation Pump @ POD 1 - Metered Water Use |               |                 |
|---|---------------|-----------------|
| Date  | Meter Reading | Water Used (AF) |
| January 1                                   | 239097        |                 |
| January 31                                  | 239097        | 0.00            |
| February 28                                 | 239097        | 0.00            |
| March 31                                    | 239097        | 0.00            |
| April 30                                    | 239097        | 0.00            |
| May 31                                      | 240783        | 0.52            |
| June 30                                     | 265698        | 7.65            |
| July 31                                     | 268977        | 1.01            |
| August 31                                   | 287106        | 5.56            |
| September 30                                | 287106        | 0.00            |
| October 31                                  | 288070        | 0.30            |
| November 30                                 | 288070        | 0.00            |
| December 31                                 | 288070        | 0.00            |
| Total                                       |               | 15.03           |

RANCH RR

PUMP# 12

WATER USE TALLEY SHEET

| DATE    | FROST | IRRIG | START TIME | STOP TIME | HRS RUN | BLOCK NUM |
|---------|-------|-------|------------|-----------|---------|-----------|
| 5-11-19 | X     |       | 1:00 PM    | 2:00 PM   | 2       | 10-12-14  |
| 5-12-19 | Y     |       | 9:00 AM    | 2:00 PM   | 6       | 10-24-50  |
| 5-20-19 |       | X     | 9:00 AM    | 2:00 PM   | 5       | 10-24-50  |
| 5-21-19 |       | X     | 7:00 AM    | 10:00 AM  | 3       | 10-24-50  |
| 6-11-19 |       | X     | 4:00 AM    | 2:00 PM   | 5       | 4-12      |
| 6-12-19 | X     |       | 6:30 AM    | 1:00 PM   | 2.5     | 4-12 AL   |
| 6-20-19 | X     |       | 12:00 PM   | 7:00 PM   | 7       | 4-12-14   |
| 6-21-19 |       | X     | 10:00 AM   | 4:00 PM   | 6       | 4-6       |
| 6-25-19 | X     |       | 7:00 AM    | 1:00 PM   | 4.5     | 4-7       |
| 6-17-19 | X     |       | 11:00 AM   | 2:00 PM   | 2.5     | 4-13      |
| 6-21-19 | X     |       | 7:00 AM    | 12:00 PM  | 5       | 4-9-10    |
| 6-24-19 | X     |       | 11:00 AM   | 4:00 PM   | 5       | 4-9-13    |
| 6-28-19 | X     |       | 11:00 AM   | 3:00 PM   | 4       | 4-9-17    |
| 7-2-19  | X     |       | 9:00 AM    | 3:00 PM   | 7       | 4-9-13    |
| 7-5-19  | X     |       | 10:30 AM   | 2:00 PM   | 4       | 4-9-12    |
| 7-8-19  | Y     |       | 1:00 PM    | 5:30 PM   | 4.5     | 4-9-12    |
| 7-10-19 | X     |       | 2:00 AM    | 1:00 PM   | 4       | 10-24-14  |
| 7-12-19 | X     |       | 7:00 AM    | 2:00 PM   | 5       | 10-24-17  |
| 7-15-19 | X     |       | 11:00 AM   | 4:00 PM   | 5       | 10-10-12  |
| 7-17-19 | X     |       | 11:30 AM   | 5:00 PM   | 5.5     | 10-10     |



Image Hyperlink

Multiple Tables/Sheets

Irrelevant Data

No Units

Flow exiting each of the six units at the Power Plant is measured continually using ultrasonic transducers. The 24-hour average flow value for each unit is mathematically calculated, displayed on SCADA, and used in flow control. A factor coefficient table listing the acre-feet of water needed to produce equivalent Mega Watts is used when a flowmeter is unavailable.

This data is submitted in accordance with California Code of Regulations, title 23, section 933(b)(4)(C).

This data is provisional. Under the California Code of Regulations, title 23, section 925(b), the Department may revise data in its annual progress reports if final data is not available.

Data is posted to  
POWER PLANT (HPP)

| Back Wash Total | Back Wash % | Permeability gpm/39812/amp |         | VFD LINE PUMP | PH  | water temp | Chlorine res. |        |      | CL-2 GEN run hrs. | Total hours | Gals 8%CL-2 made | Oper Init. |
|-----------------|-------------|----------------------------|---------|---------------|-----|------------|---------------|--------|------|-------------------|-------------|------------------|------------|
|                 |             | Rack #1                    | Rack #2 |               |     |            | Flow          | Filter | Delv |                   |             |                  |            |
| 184.000         | 5.77%       | 0.0018                     | 0.0017  | 21.4          | 6.9 | 58.8       | 0.00          | 1.90   | 1.41 | 563.0             | 10.0        | 1800             | KD         |
| 170.000         | 6.27%       | 0.0022                     | 0.0018  | 20.8          | 6.9 | 58.5       | 0.00          | 1.60   | 1.75 | 563.0             | 0.0         | 0                | KD         |
| 190.000         | 6.47%       | 0.0035                     | 0.0024  | 21.7          | 6.9 | 58.4       | 0.00          | 2.10   | 1.54 | 563.0             | 0.0         | 0                | KD         |
| 170.000         | 6.12%       | 0.0024                     | 0.0021  | 21.4          | 6.9 | 59.6       | 0.00          | 1.90   | 1.55 | 579.0             | 15.0        | 2200             | KD         |

|        | Oct  | Nov   | Dec   | Jan   | Feb | Mar    | Apr    | May    | Jun   | Jul | Aug | Sep  |
|--------|------|-------|-------|-------|-----|--------|--------|--------|-------|-----|-----|------|
| G      |      |       | 10.6  | 23.27 | 75  | 138.19 | 373.01 | 100.81 | 63    |     |     |      |
| H      | 0.97 | 20.68 | 8.44  | 38.72 | 40  | 373.04 | 27.89  | 243.8  | 80.52 | 25  |     | 0.38 |
| Total: | 0.97 | 20.68 | 19.04 | 61.99 | 115 | 511.23 | 400.9  | 344.61 | 80.52 | 88  | 0   | 0.38 |

# Qualified Individual

**A Qualified Individual is required for EVERY measurement approach!**

| A Qualified Individual Is Required to...  | Device | Method | ACP |
|---|--------|--------|-----|
| Install measuring device  | ✓      |        |     |
| Calibrate/Certify accuracy  | ✓      | ✓      |     |
| Field Test  | ✓      | ✓      |     |
| Perform field inspection and analysis   | ✓      |        |     |
| Approve volume conversion method  | ✓      |        |     |
| Prepare measurement method form   |        | ✓      |     |
| Certify Alternative Compliance Plan <i>(may include any of the above tasks)</i> |        |        | ✓   |

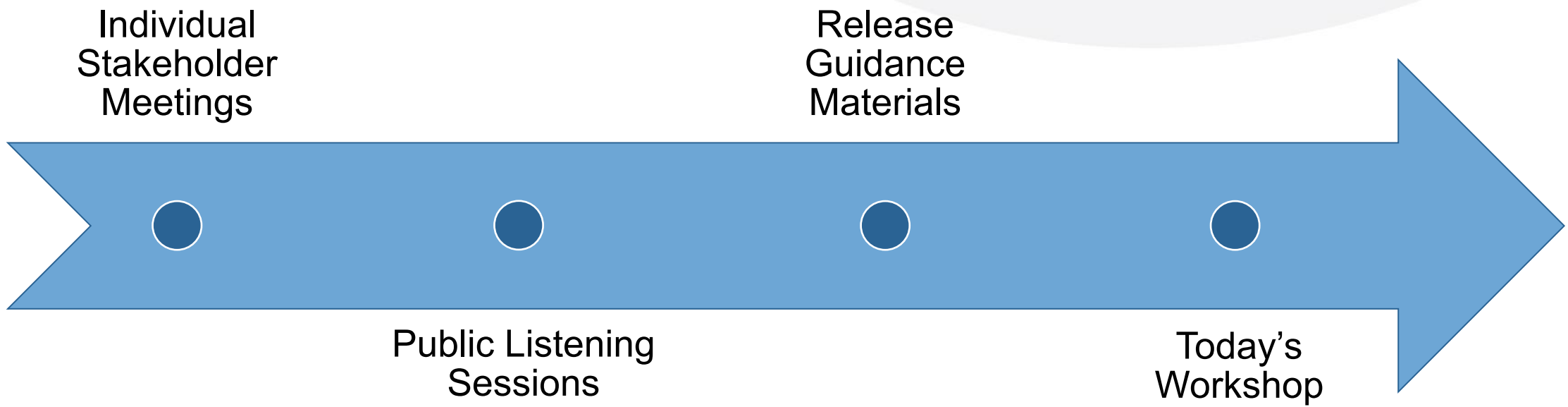
# Qualified Individual (cont.)

| For diversions of...             | ...a Qualified Individual can be any of the following:   |
|----------------------------------|--|
| Less than 100 acre-feet per year | <ul style="list-style-type: none"> <li>• Anyone trained and experienced in water measurement (completion of a class on measurement devices and methods through the <a href="#">UC Cooperative Extension</a> is highly recommended but not required)</li> </ul>   |
| 100 acre-feet per year or more   | <ul style="list-style-type: none"> <li>• A California-registered professional engineer (or someone working under their supervision)</li> <li>• A California-licensed contractor for well drilling (C-57) or machinery and pumps (C-61/D-21)</li> <li>• Any diverter who has completed a class on measurement devices and methods through the <a href="#">UC Cooperative Extension</a></li> </ul> |

# Stakeholder Engagement

# Recent Outreach

- Clarify confusion with the regulation
- Understand complaints and frustration
- Solicit feedback and suggestions



# Key Findings



Uncertainty why the State Water Board needs this data and how it will be used



Concern that 10-acre-foot threshold is not appropriate statewide



Frustration regarding costs, measuring complicated diversions, potential for double reporting



Desire for official datafile templates



Interest in regional measurement partnerships

# New Guidance and Tools

# Measurement and Reporting Manual

- Your roadmap to compliance
- Comprehensive reference written in plain language
  - Definitions of key terms
  - Applicability and requirements
  - Qualified Individual specifications
  - How to measure and report
  - Appendices for special scenarios
- Will be updated periodically to provide additional guidance on more complicated scenarios



## MEASUREMENT AND REPORTING MANUAL

State Water Resources Control Board  
Division of Water Rights

December 2023

1




# Datafile Templates

- An easy and approved way of compiling your data!
- Choose from 5 different templates, depending on your requirements
- Instruction manual going step-by-step and column-by-column through the files
- Coming soon: Video tutorial on how to use and submit datafiles

|    | A                    | B                       | C                           | D                          | E                             | F                            | G                  | H                           | I  |
|----|----------------------|-------------------------|-----------------------------|----------------------------|-------------------------------|------------------------------|--------------------|-----------------------------|--|
| 1  | Date<br>(MM/DD/YYYY) | Time<br>(HH:MM<br>24hr) | Raw<br>Measurement<br>Value | Raw Unit of<br>Measurement | QA/QC<br>Measurement<br>Value | QA/QC Unit of<br>Measurement | Volume<br>Diverted | Volume<br>Diverted<br>Units | Data flags (optional; 200 char. max)   |
| 2  | 10/01/2022           | 15:28                   | 0.00                        | Gallons per minute         | 0.00                          | Gallons per minute           | 0.0000             | Acre-feet                   |  |
| 3  | 10/02/2022           | 14:02                   | 2.01                        | Gallons per minute         | 0.00                          | Gallons per minute           | 0.0000             | Acre-feet                   | Device reporting diversion when none occurred. Volume field shows corrected data |
| 4  | 10/03/2022           | 15:23                   | 0.00                        | Gallons per minute         | 0.00                          | Gallons per minute           | 0.0000             | Acre-feet                   |  |
| 5  | 10/04/2022           | 13:58                   | 0.00                        | Gallons per minute         | 0.00                          | Gallons per minute           | 0.0000             | Acre-feet                   |  |
| 6  | 10/05/2022           | 12:22                   | 0.00                        | Gallons per minute         | 0.00                          | Gallons per minute           | 0.0000             | Acre-feet                   |  |
| 7  | 10/06/2022           | 13:54                   | 174.57                      | Gallons per minute         | 174.57                        | Gallons per minute           | 0.8207             | Acre-feet                   |  |
| 8  | 10/07/2022           | 12:46                   | 210.67                      | Gallons per minute         | 210.67                        | Gallons per minute           | 0.8870             | Acre-feet                   |  |
| 9  | 10/08/2022           | 13:23                   | 192.83                      | Gallons per minute         | 192.83                        | Gallons per minute           | 0.8740             | Acre-feet                   |  |
| 10 | 10/09/2022           | 12:53                   | 295.17                      | Gallons per minute         | 295.17                        | Gallons per minute           | 1.2772             | Acre-feet                   |  |
| 11 | 10/10/2022           | 15:43                   | 189.23                      | Gallons per minute         | 189.23                        | Gallons per minute           | 0.9350             | Acre-feet                   |  |

# FAQ Document

- Simplified answers to questions covering the following topics:
  - General Questions
  - Datafile Format and Submission
  - Measuring Devices
  - Other Measurement Questions
  - Telemetry Requirements
  - Failure to Comply
  - Contact Information

|  <b>Frequently Asked Questions</b>   |          |
|---|----------|
| <b>Water Measurement and Reporting Regulation</b>   |          |
| <b>GENERAL QUESTIONS</b> .....  | <b>2</b> |
| 1. What should I do first?.....   | 2        |
| 2. Which water diverters are required to comply with the Water Measurement and Reporting Regulation? Who must measure and report?.....  | 2        |
| 3. I am required to measure and report my diversion volumes. What do I have to do?.....   | 3        |
| 4. THE face value of my water right is greater than 10 acre-feet per year, but my actual diversions are less than 10 acre-feet per year. Sometimes I do not divert any water at all. Do I still need to measure and submit a datafile?..... | 3        |
| 5. Do I need to measure the entire year or just during my diversion season?.....  | 4        |
| 6. I recently bought a property with a Statement of Diversion and Use/Riparian Claim/Pre-1914 Appropriative Claim. Am I subject to the Regulation based on the previous owner's use?.....   | 4        |
| 7. Do I need to have a physical Measuring Device to comply with the Regulation?.....  | 4        |
| 8. How long is my Measurement Method and/or Alternative Compliance Plan valid?.....   | 5        |
| <b>DATAFILE FORMAT AND SUBMISSION</b> .....   | <b>5</b> |
| 9. If I comply with the Regulation through a Measurement Method or Alternative Compliance Plan, do I still need to submit a datafile?.....  | 5        |
| 10. Is the format for the datafiles specified in the Regulation?.....   | 6        |
| 11. Should I submit raw data from my Measuring Device or QA/QC'd data? What if there was a period during my diversion season when my Measuring Device was not functioning properly (e.g., due to vegetation, animals, weather, etc.)?.....  | 6        |
| 12. How long am I required to keep records of my data?.....   | 6        |
| 13. The measurement frequency requirements apply to how often we need to collect data. How  |          |

# Other New Resources



**UPDATED  
WEBSITE**



**LISTENING  
SESSION  
FEEDBACK  
SUMMARY**



**MEASUREMENT  
METHOD AND  
ACP RENEWAL  
FORMS**

# What Lies Ahead



Water Diversion and Use Reports

*Submit annual reports by February 1*



One-on-one office hours

*Email*

*DWR-Measurement@waterboards.ca.gov  
to sign up*



Updates to guidance documents

*Address additional questions*

*Clarify language based on any feedback received*

# Useful Links

**Water Measurement Website**

<https://bit.ly/MeasurementWebsite>

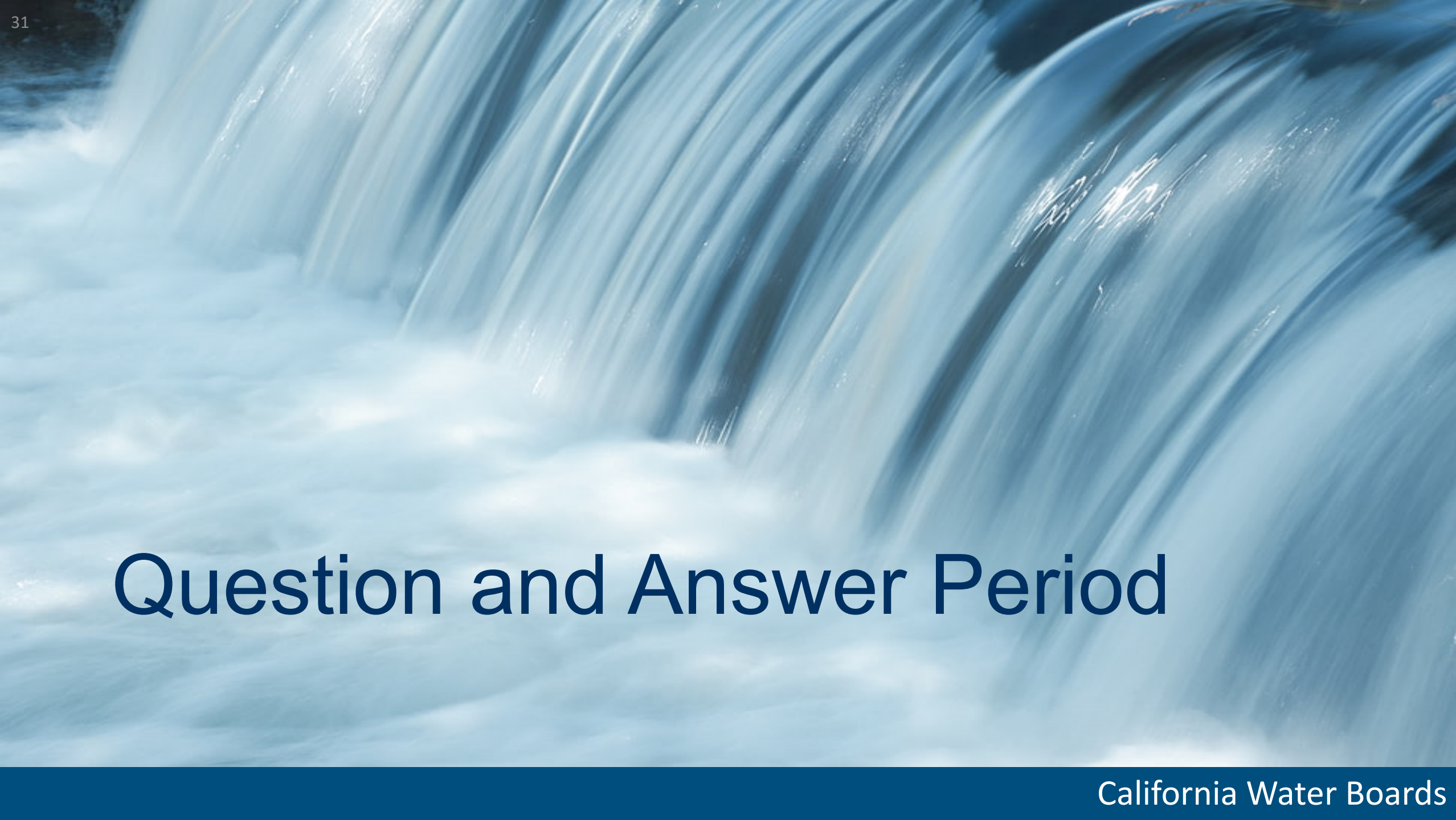


**Regulation Text**

<https://bit.ly/RegulationText>



**10 Minute Break: Please Return at  
10:50**

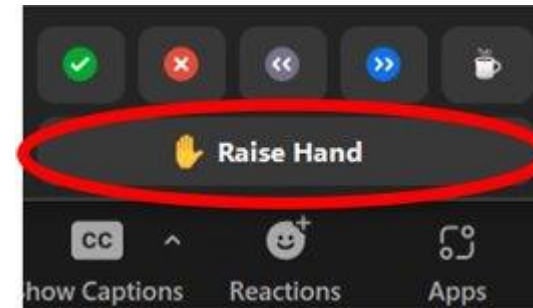


# Question and Answer Period

# Logistics

## As a Reminder

- This workshop, including the Q&A portion, is being recorded
- Written questions can be submitted using the “Q&A” feature
- Use the “Raise Hand” feature (under Reactions, or dial \*9) if you would like to speak



[DWR-Measurement@Waterboards.ca.gov](mailto:DWR-Measurement@Waterboards.ca.gov)



# Poll #3: Feedback



Thank You  
for Joining  
Us Today!

**Email:**

[DWR-Measurement@Waterboards.ca.gov](mailto:DWR-Measurement@Waterboards.ca.gov)

**Water Measurement Website:**

<https://bit.ly/MeasurementWebsite>



**Regulation Text:**

<https://bit.ly/RegulationText>

