

Industrial Process Water Regulation

Presentation to the California Water Commission

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Outline

- Statutory requirements
- Emergency Regulation
 - Preparing the Emergency Regulation
 - Adoption by the CWC
 - Response to CWC questions at the November meeting
 - Approval by the OAL
 - OAL comments on the Emergency Regulation
- Permanent Regulation
- Permanent rule making process and calendar

Senate Bill 7 (SBX7-7 Statute of 2009)

Requirements

- Requires urban retail water suppliers to reduce per capita water use for the state to achieve a statewide reduction of 20% by 2020.

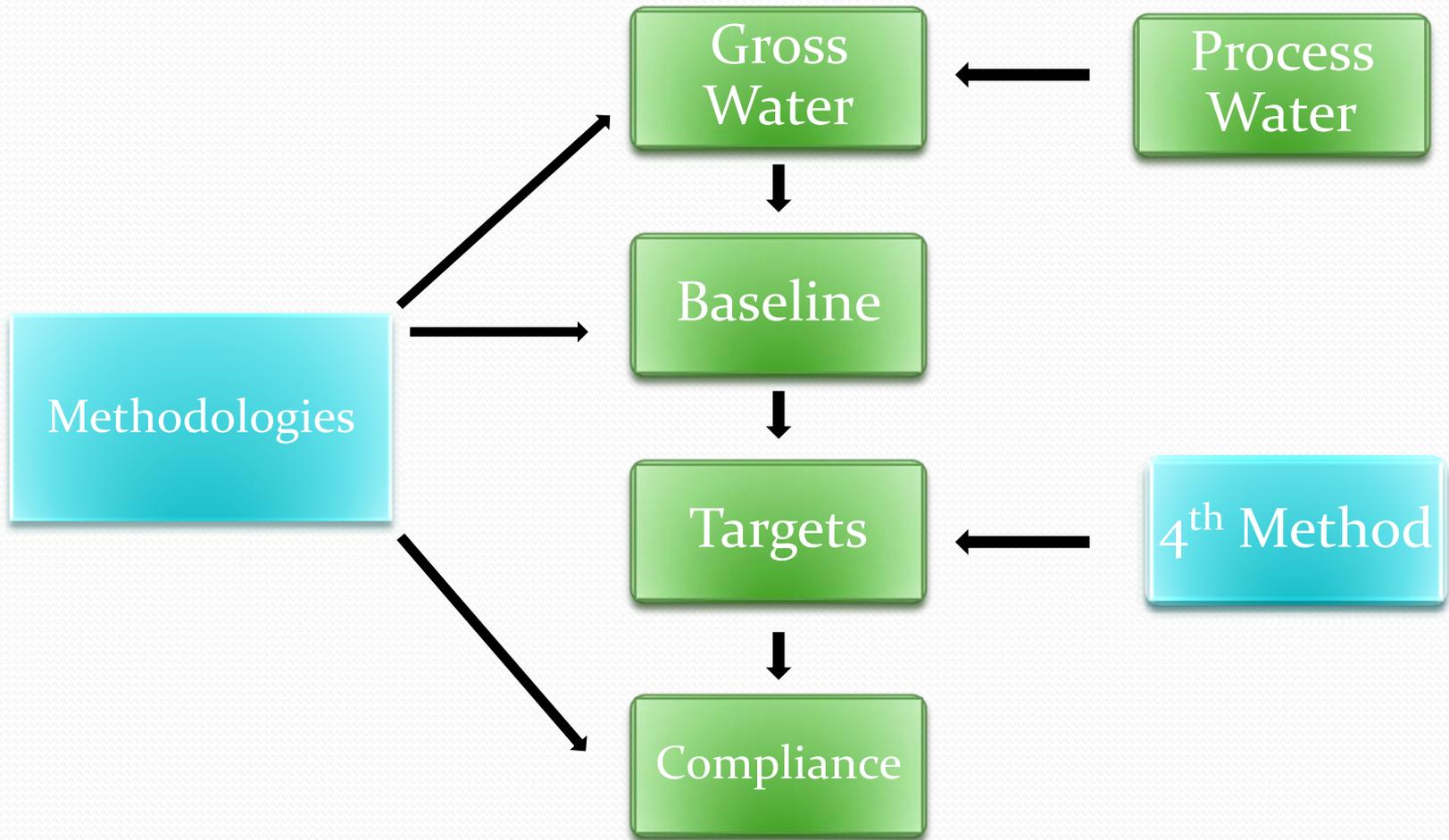


SBX7-7 Requirements

- Urban water suppliers shall:
 - Estimate baseline gross water use
 - Develop water use target to reduce baseline per capita water use for the state to achieve 20% per capita reduction by 2020

SBX7- 7 Requires DWR:

- To develop methodologies for consistent implementation of the Act
- To develop a method for calculating water use target (4th Method)



The Statute

- DWR shall adopt the regulation in accordance with the following:
 - *Section 10608.24 (e)* “When developing the urban water use target pursuant to Section 10608.20, an urban retail water supplier that has a **substantial percentage** of **industrial water** use in its service area, may exclude process water from the calculation of gross water use to avoid a **disproportionate burden** on another customer sector.”
 - *Section 10608.26(d) (1)* “Any ordinance or resolution adopted by the water supplier ... shall not require existing customers to undertake changes in product formulation, operations, or equipment that would reduce process water, but may provide technical and financial assistance to implement efficiency measures for process water”

Process Water Definition

water used by **industrial water users*** for producing a product or product content, or water used for research and development.

*-as Defined by North American Industry Classification System Codes (31 to 33)



Data Analysis

- Four criteria were developed based on percentages of industrial water use, per capita industrial water use, per capita non-industrial water use, and disadvantaged community – to determine substantial percentage of industrial water use that would avoid disproportionate burden on non-industrial sectors.
- Although most of the stakeholders agreed in principle to these criteria, a consensus could not be reached on thresholds for each of the criterion.

Exclusion Criteria

- When calculating its gross water use, an urban retail water supplier may deduct up to 100 percent of process water use if:
 - a) Total industrial water use is equal to or greater than 12 percent of gross water use, or
 - b) Total industrial water use is equal to or greater than 15 gallons per capita per day, or

Exclusion Criteria (cont.)

- c) Non-industrial water use is equal to or less than 120 gallons per capita per day if the water supplier has self-certified the sufficiency of its water conservation program with the Department of Water Resources under the provisions of section 10631.5 of the Water Code, or
- d) The population within the suppliers' service area meets the criteria for a disadvantaged community.

Volume of Industrial Water Eligible for Exclusion of Process Water

Scenario	Volume (AF)	Percentage
Pct Industrial >10%	53,616	1.03
Pct Industrial >12%	27,865	0.54
Pct Industrial >15%	21,100	0.42
Pct Industrial >10% or gpcd-ind>12	78,978	1.54
Pct Industrial >10% or gpcd-ind >20	55,147	1.06
Pct Industrial >12% or gpcd-ind >15	62,534	1.20
Pct Industrial >12% or gpcd-ind >20	31,814	0.62
Pct Industrial >15% or gpcd-ind >20	29,641	0.57
Pct Industrial >15% or gpcd-ind >30	22,584	0.44

Suppliers Eligible to Exclude Process Water

Scenario	Number of Suppliers	Percentage of Suppliers
Pct Industrial >10%	9	5.97
Pct Industrial >12%	5	3.59
Pct Industrial >15%	2	1.53
Pct Industrial >10% or gpcd-ind>12	18	12.12
Pct Industrial >10% or gpcd-ind >20	10	6.83
Pct Industrial >12% or gpcd-ind >15	13	8.88
Pct Industrial >12% or gpcd-ind >20	8	5.29
Pct Industrial >15% or gpcd-ind >20	7	4.61
Pct Industrial >15% or gpcd-ind >30	4	2.56

Additional Exclusions

- The 120 per capita non-industrial water use threshold proposed in (c) would enable 12 agencies (up to 8% percent) to deduct process water. This amounts to 4,760 af of industrial water.
- This brings the percentage of total water suppliers that may deduct process water from gross water use as a result of (a), (b), and (c) up to 17%.
- More suppliers may be able to deduct because of criteria (d).



Addressing Questions From Last CWC Meeting

1. Economic analysis
2. Further explanation of Option b
3. How many additional water agencies qualify under Option d; Disadvantage Communities

1. Economic Analysis Discussion

- Strategies businesses may use in response to an increase in price of an input:
 1. Accept lower profits
 2. Increase the price of the product

Business Choices

- Change the product/service being provided to one that reduces the use of the input
- Use a substitute input with the existing production technology (e.g., substitute purchased recycled water for purchased fresh water)
- Change production technology
 - Use a technology that reduces use of the input (e.g., increase efficiency through on-site recycling)
 - Use a technology that eliminates the need for the input (e.g., use air cooling instead of water cooling)
- Use a substitute source for the input
 - Fabricate the input in-house (e.g., drill a well)
 - Change the vendor of the input

Business Responses

- The business will adopt the strategy that minimizes the cost of the input.
- Some of these strategies may not be available to businesses using process water.
- Depending upon the size of the price increase and the costs and availabilities of the strategies, the business may become unprofitable and/or unable to meet an existing debt obligation.

Economic Analysis Conclusions

Overall impact would be nominal and very difficult to quantify due to:

- Complexities of market and local conditions
- Water agencies charge by cost of delivery or tier pricing
- Local water agency pricing is subject to local and State jurisprudence
- Local water agency pricing is subject to local public review

2. Explanation of Option b; 15 GPCD Criterion

- The Department of Water Resources (DWR) utilized the following processes to develop the criteria:
 - Consulted a statistician.
 - Conducted literature search for the use of “substantial percentage”.
 - Convened a Process Water Work Group and received comments from stakeholders.
 - Analyzed water use data obtained from the California Urban Water Conservation Council (CUWCC).

The Statute

- *Section 10608.24 (e)* “When developing the urban water use target pursuant to Section 10608.20, an urban retail water supplier that has a **substantial percentage** of **industrial water** use in its service area, may exclude process water from the calculation of gross water use to avoid a **disproportionate burden** on another customer sector.”

Process Water Regulation

- DWR attempted to address the following basic questions:
 - what is “substantial percentage” of industrial water use in a service area?
 - what constitutes a “disproportionate burden” on non-industrial sectors?

What is “substantial percentage”?

- To answer this question, DWR:
 - Consulted a statistician who has written several books including “Statistical Methods in Water Resources”. DWR learned that there is no definition for “substantial percentage” in statistics.
 - Conducted literature search for the use of “substantial percentage” in published works.

DWR found out that different authors in various fields have used the phrase “substantial percentage” to refer to numbers ranging from 20% to 65%. DWR was, however, unable to find any scientific definition for the phrase.

What is “substantial ...”? (cont.)

- Convened a Process Water Work Group and received stakeholder input.
 - Comments received from the work group stressed that “substantial percentage” of industrial water use depends on local conditions including: prior conservation efforts and demand hardening, socio economic conditions of the customers, population distribution, characteristics of the industry, etc.
 - DWR agreed with most of these comments and considered them in the decision making process.

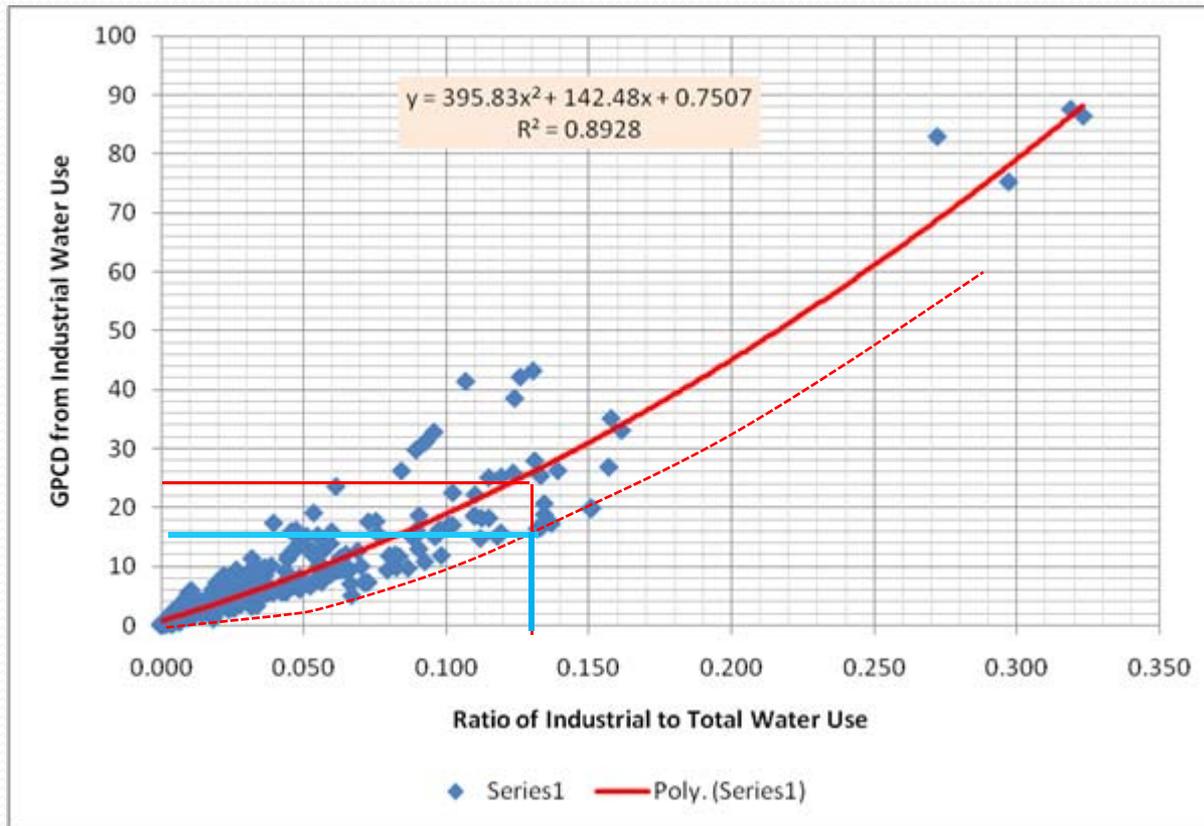
What is “substantial ...”? (cont.)

- Obtained and analyzed water use data from the California Urban Water Conservation Council (CUWCC).
 - The four year (2005-2008) water use data consisted of, among other things, population, total water use, and industrial water use.
 - Since the data was voluntarily reported by the suppliers, the randomness of the sampling could not be verified. Since it was the only data available to DWR, it was assumed to be a random sample that represents water use patterns throughout the state.

Data Analysis (cont.)

- To determine the substantial percentage, it was necessary to quantify what the burden will be on the other sectors if industrial water is not excluded.
- From the data set that DWR used, it was determined that per capita industrial water use (gpcd of industrial water use) can be used as an indicator of a burden.

Data Analysis (cont.)



Data Analysis (cont.)

- The chart in the previous slide demonstrated that there is a good correlation between gpcd of industrial water use and the percentage of industrial water use.
- DWR presented different iterations of percentage industrial water use and gpcd of industrial water to the work group for discussion.
- Based on data analysis and feedback from the work group, DWR decided substantial percentage of industrial water use to be set at 12% of total industrial water use.

Data Analysis (cont.)

- This corresponds to 15 gpcd of industrial water use on the previous chart. Therefore, 15 gpcd of industrial water was taken as a threshold for determining disproportionate burden on other sectors.

3. Disadvantage Communities Criteria

- DWR provided information on the percentage of agencies that would be eligible to exclude process water based on criteria (a) (b) and (c). The data used for this analysis was obtained from the California Urban Water Conservation Council (CUWCC).
- However, the CUWCC data did not include household income and was, therefore, not useful in the analysis for criterion (d).
- In order to provide the California Water Commission an estimate of the impact of criterion (d), DWR sought out and utilized two other data sets to analyze the impact of criterion (d). These two data sets were:

Preliminary Analysis

- Data Set #1 had 698 water agencies throughout the state of California with a GIS file of their district boundaries. These GIS district boundary files were superimposed on Data Set #2, a GIS layer of California's 2000 census data. This allowed DWR to assess which of the 698 water districts served disadvantaged communities.
- Results from this preliminary analysis indicated that 270 of the 698 agencies (39 percent) served disadvantaged communities and thereby qualified for process water exclusion under criteria (d).

Further Analysis

- A closer look at the list of water agencies in Data Set #1 showed that many agencies listed should not have been included in the analysis
- In order to refine Data Set #1 so that it listed only water suppliers required to submit UWMPs, DWR compared Data Set #1 with Data Set #3, a list of agencies required to submit UWMPs.
 - **Data Set #3** Urban Water Management Plan (UWMP) List from DWR identifying urban water suppliers that have more than 3000 connections.

Further Analysis cont.

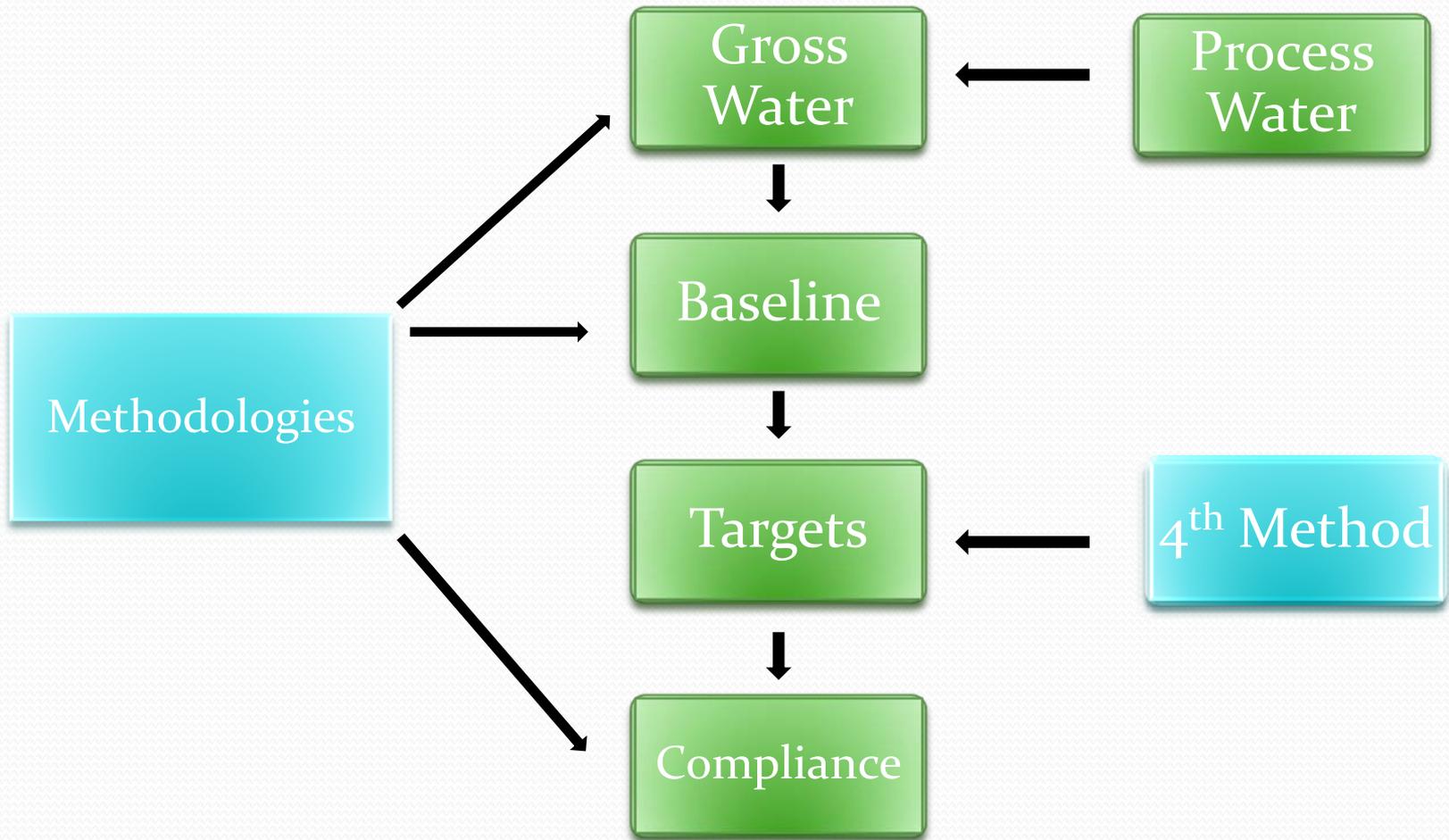
- The list now numbered 263 agencies. From this refined list, 29% of the districts, (75 districts of 263) served disadvantaged communities.
- After removing suppliers that qualify under criteria (a) through (c), it was determined that only **12 percent of urban water suppliers would be excluded solely based on criteria (d)**. It should be noted, however, that in the current data set, 59 percent of those who qualify solely under criteria (d) either reported a zero industrial water use or did not report industrial water use at all. Therefore, it is believed that the percentage of suppliers that may exclude solely based on criteria (d) would be much less than the 12 percent shown here.

Overall Conclusion

- Combining this result with the analysis done in the previous Process Water Discussion Paper, brings the total percentage of urban water suppliers that may exclude process water from the calculation of gross water use to 29 percent.
- This implies the total amount of process water that may be excluded from criteria (d) alone is only 1,646 AF and would be less than 2.1 percent of total industrial water use.
- It is anticipated that the 29% of water agency eligibility is actually lower since many of the reporting agencies do not either report industrial water or do not have industries within their jurisdiction.

OAL Comments

- Two documents related to the Emergency Industrial Process Water Regulation should be incorporated by reference into the Permanent Industrial Process Water Regulation
 - Methodologies for Calculating Baseline and Compliance Per Capita Water Use, DWR, October 1, 2010
 - Draft 4th Method for Calculating Target, DWR, January 2011



Methodologies cont.

- Legislature listed 8 methodologies:
 - Gross Water Use
 - Service Area Population
 - Base Daily per Capita Water Use
 - Compliance Daily per Capita Water Use
 - Indoor Residential Water Use
 - Landscape Area Water Use
 - Baseline Commercial Industrial and Institutional Water Use
 - Criteria for Compliance Year Adjustment

Methodologies cont.

- DWR developed a ninth methodology on Regional Compliance.
- Criteria for Compliance Year Adjustment not completed as more time was needed to develop the weather normalization model and it is not required for the 2010 urban water management plans. This will be completed in 2011.

4th Method for Calculating Urban Water Use Targets

- SBx7-7 provided 3 methods for suppliers to calculate urban water use targets and directed DWR to develop a 4th method.
- Legislation stated that the method should identify targets that cumulatively result in a statewide 20-percent reduction in urban per capita water use by 2020.

4th Method cont.

- DWR with the stakeholder committee evaluated 5 different alternatives for the 4th method.
- DWR will release a Draft Provisional 4th Method on January 19, 2011.
- Method called “Provisional” as SBx7-7 directs DWR to revise the method in 2014.

Options regarding Regulation Package

1. Incorporate Methodologies document by reference into Process Water Regulation and submit to OAL now
 - The package currently submitted to the CWCIncorporate by reference 4th Method during public comment period
2. Wait and incorporate by reference both documents after February CWC meeting

Ramifications

1. OAL has identified these two documents as needing to be a part of the regulatory process.
2. Because these documents are incorporated by reference into a regulation, they then have the authority of a regulation.
3. To not include them maybe risky
4. Time constraints

Opportunities for Public Comment and Timeline

