

Appendix C

Example Approach to Demonstrate Reduced Delta Reliance

C.1 Introduction

An urban water supplier (Supplier) that anticipates participating in or receiving water supply benefits from a proposed project (covered action¹) such as a multi-year water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Sacramento-San Joaquin Delta (Delta) should provide information in their 2015 and 2020 Urban Water Management Plans (UWMP's) that can then be used in the covered action process to demonstrate consistency with Delta Plan Policy WR P1, *Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance* (California Code Reg., tit. 23, § 5003).

In 1983, the California Legislature enacted the Urban Water Management Planning Act (Act). The law requires Suppliers, providing potable water for municipal purposes to more than 3,000 customers or serving more than 3,000 acre-feet annually, to adopt an Urban Water Management Plan (UWMP) every five years demonstrating water supply reliability in normal, single dry, and multiple dry years. Each UWMP must be adopted by the

¹ Cal. Code Regs., tit. 23, § 5001, subd. (j): A "Covered action" is defined as "an activity which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, or a reasonably foreseeable indirect physical change in the environment ... "directly undertaken by any public agency"" (Pub. Resources Code, § 21065) that (i) will occur, in whole or in part, within the boundaries of the Delta or Suisun Marsh, (ii) will be carried out, approved, or funded by the state or a local public agency, (iii) is covered by one or more provisions of the Delta Plan, and (iv) will have a significant impact on achievement of one or both of the coequal goals or the implementation of government-sponsored flood control programs to reduce risks to people, property, and state interest in the Delta."

Supplier's Governing Board and submitted to the California Department of Water Resources (DWR).

Delta Plan Policy WR P1 is one of fourteen regulatory policies in the Delta Plan. The Delta Plan is a comprehensive, long-term, legally enforceable plan guiding how federal, state, and local agencies manage the Delta's water and environmental resources. The Delta Plan was adopted in 2013 by the Delta Stewardship Council (DSC). Delta Plan Policy WR P1 identifies UWMPs as the tool to demonstrate consistency with state policy to reduce reliance on the Delta for a Supplier that carries out or takes part in a covered action.

This appendix provides an example approach for a Supplier to demonstrate a measurable reduction in reliance on Delta water supplies. Specific elements of this appendix include:

- Background: Delta Reform Act reduced reliance policy and the role of water conservation; and, overview of the Delta Plan and Policy WR P1; and
- Example Approach for Demonstrating Consistency with WR P1: Documenting and quantifying supplies contributing to reduced reliance on the Delta watershed and improved regional self-reliance.

DWR recommends that Suppliers prepare and submit this information as an appendix or other attachment to their UWMP. It will make use of the characterization of past, current, and projected future supplies and uses, which are prepared for the UWMP. An example template is offered as an Excel Workbook (*Appendix C Reduced Reliance Urban Example, Appendix C Example Workbook*) to assist those who follow the approach demonstrated in this appendix. This Excel Workbook can be downloaded from the Water Use Efficiency (WUE) Data Portal, under the Resources of the UWMPs section (wuewater.water.ca.gov).

C.2 Background

C.2.1 The Delta Reform Act

The Sacramento-San Joaquin Delta Reform Act of 2009 (Delta Reform Act) (Water Code section 85000 et seq), established the coequal goals for the Delta of "providing a more reliable water supply for California and

protecting, restoring, and enhancing the Delta ecosystem.”² These coequal goals must be achieved “in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place.”³

The Delta Reform Act also includes a state policy to reduce reliance on the Delta in meeting California’s future water supply needs through a statewide strategy of investing in improved regional supplies, conservation and water use efficiency:

The policy of the State of California is to reduce reliance on the Delta in meeting California’s future water supply needs through a statewide strategy of investing in improved regional supplies, conservation, and water use efficiency. Each region that depends on water from the Delta watershed shall improve its regional self-reliance for water through investment in water use efficiency, water recycling, advanced water technologies, local and regional water supply projects, and improved regional coordination of local and regional water supply efforts.⁴

Water demand management measures can help save water, which in some cases can help reduce the amount of water needed from various water sources. The use of these water management measures, combined with alternative sources of supply, may help local Suppliers reduce their reliance on water from the Delta.

C.2.2 The Delta Plan

In addition to setting the coequal goals, the Delta Reform Act also created the DSC, which is tasked with furthering the state’s coequal goals for the Delta through development of a Delta Plan.⁵ While the Delta Reform Act and the Delta Plan are often referred to interchangeably, the Delta Reform Act contains a variety of directives for multiple agencies, whereas the Delta Plan, as discussed in more detail below, is the implementation framework for a number of those directives. The Delta Plan is a comprehensive, long-term resource management plan for the Delta, containing both regulatory policies

² Pub. Resources Code, § 29702; Wat. Code, § 85054.

³ Wat. Code, § 85054.

⁴ Wat. Code, § 85021.

⁵ Wat. Code, §§ 85300, subd. (a), 85302, subd. (a).

and recommendations, aimed at furthering the coequal goals and promoting a healthy Delta ecosystem.⁶

The Delta Plan provides a distinct regulatory process for activities that qualify as covered actions. The Delta Reform Act established a self-certification process for demonstrating consistency of covered actions with the Delta Plan.⁷ State and local public agencies proposing covered actions, prior to initiating the implementation of that action, must prepare a written certification of consistency with detailed findings as to whether the covered action is consistent with applicable Delta Plan policies and must submit that certification to the DSC.⁸

C.2.3 Policy WR P1

Delta Plan Policy WR P1 is relevant to a Supplier that is participating in or carrying out a proposed covered action or receiving Delta water from a proposed covered action. Examples of such covered actions include multi-year water transfers, conveyance facilities, or new diversions that involve transferring water through, exporting water from, or using water in Delta. WR P1 states that water shall not be exported from, transferred through, or used in the Delta if all of the following apply:

- (a) One or more Suppliers that would receive water as a result of the export, transfer, or use have failed to adequately contribute to reduced reliance on the Delta and improved regional self-reliance consistent with all of the requirements listed in paragraph (1) of subsection (c);
- (b) That failure has significantly caused the need for the export, transfer, or use; and
- (c) The export, transfer, or use would have a significant adverse environmental impact in the Delta.

Section (c)(1) of WR P1 states that commencing in 2015, Suppliers that have (A) completed an urban water management plan, (B) implemented the efficiency measures in that plan, and (C) shown a measurable reduction in

⁶ Wat. Code, §§ 85059, 85300, subd. (a), 85302, subd. (a).

⁷ Wat. Code, § 85225.

⁸ Wat. Code, § 85225.

Delta reliance and improvement in regional self-reliance in the plan, are contributing to reduced reliance on the Delta and consistent with WR P1.⁹

Specifically, the California Code of Regulations, Title 23, § 5003(c)(1) states:

Water suppliers that have done all the following are contributing to reduced reliance on the Delta and improved regional self-reliance and are therefore consistent with this policy:

(A) Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8;

(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and

(C) Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code section 1011(a).

As noted in section (C) above, demonstrating reduced reliance on Delta water supplies was anticipated to commence with the 2015 UWMPs and expected for each UWMP plan cycle thereafter for those agencies that take part or will take part in a covered action or that would receive water supply benefits from the covered action.

CCR, Title 23, § 5003(c)(1) is followed by a description of programs and projects that reduce reliance on the Delta. As further stated in the CCR, Title 23, § 5003(c)(2):

⁹ California Code of Regulations, Title 23, § 5003(c)(1).

Programs and projects that reduce reliance could include, but are not limited to, improvements in water use efficiency, water recycling, stormwater capture and use, advanced water technologies, conjunctive use projects, local and regional water supply and storage projects, and improved regional coordination of local and regional water supply efforts.

C.3 Example Approach for Demonstrating Consistency with WR P1

This document provides an example for Suppliers on how they may be able to demonstrate consistency with WR P1, namely subdivisions (c)(1)(B) and (c)(1)(C), enabling them to document and quantify supplies contributing to reduced reliance on the Delta watershed and improved regional self-reliance.

The method used in this example is designed to enable a Supplier to document its unique circumstances and produce quantified information that can be used in future certifications of consistency with WR P1 for potential future water supply covered actions in the Delta. In addition, while the method used here can serve as guidance, it is not a mandate. As such, each Supplier retains discretion to document reduced reliance in other ways or not at all. However, failure to document reduced reliance in a Supplier's UWMP may impede or block future water supply covered actions in the Delta that could improve the reliability of such supplies to the Supplier's benefit.

The example approach in this Appendix is designed to produce data and information covering the 2015 UWMP as well as the 2020 UWMP and subsequent plan cycles. (Suppliers furnishing information for the 2015 UWMP may want to amend that plan as discussed further below.)

To document and quantify supplies contributing to reduced reliance on the Delta watershed and improved regional self-reliance, there are a number of issues to be considered. The subsequent sections include discussion of the following issues and steps:

- Setting a Baseline
- Change in Delivery of Delta Water
- UWMP WR P1 Consistency Reporting
- Example Data Analysis and Supporting Documentation

- Steps in Example Approach
- Documenting Implementation Actions

C.3.1 Setting a Baseline

To demonstrate reduced reliance on the Delta, water Suppliers need to compare current or future Delta water use with a baseline. This baseline is the amount of Delta water used historically that will be compared to current and projected future Delta water use in order to calculate how Delta water use and regional self-reliance have changed over time.

Some factors to consider in selecting a baseline period:

- **Baseline year(s).** Water supplies and water use (demand) varies from year to year because of hydrology, regulatory actions, growth and development, as well as other factors, which must be taken into consideration when selecting or calculating the baseline. A single year of actual supplies or an average of a range of years may or may not adequately characterize water supply and use for assessing whether or not reliance on Delta water has decreased. UWMP-reported normal or average year conditions typically incorporate a large range of hydrologic conditions on forecasts of supplies and demands and reflect the average of all modeled hydrologic outcomes under normal demand (usage) conditions.
- **Consistent, fixed baseline.** Using the same, fixed baseline in each UWMP allows Suppliers to have a consistent value with which current and future Delta water use can be compared. If a changing baseline is used (e.g., baseline extended five years for each UWMP cycle), projected use would be compared against years in which the Supplier already implemented water saving actions for reduced reliance on the Delta; this would not accurately reflect overall reduction in Delta reliance.
- **Baseline documentation.** It is important that Suppliers clearly identify the baseline year, data sources used, data used, and the rationale for the selected baseline. Suppliers may also wish to report margins of error in their baseline value.

C.3.2 Change in Delivery of Delta Water

Once the baseline has been established, Suppliers can then quantify the expected outcomes for reductions in reliance on supplies from the Delta watershed compared to that baseline.

C.3.2.1 Calculating Current Conditions

Ideally, the baseline and expected outcomes would be provided on a basis that is consistent and reflect average or normal year conditions rather than actual conditions for the current year. This concept is described in more detail in the discussion of “Key Data Considerations”, below. The “Key Data Considerations” section also provides a discussion of alternative options if the needed data is unusable or not included in a Supplier’s UWMP.

Suppliers may use their 2015 and 2020 UWMPs’ reported normal water supplies to calculate change in water use between baseline and the current UWMP in order to demonstrate reduced Delta reliance. However, to report reduced reliance for the covered action consistency with WR P1 analysis, water Suppliers will also have to show the expected, or future projected, reliance on the Delta.

C.3.2.2 Calculating Future Water Use Projections

In order to provide “the expected outcome for measurable reduction in Delta reliance”, the demonstration of reduced reliance will need to also include projected future Delta water use and compare that to baseline water use. Although projecting future conditions may be replete with complicated variables, Suppliers may attain reasonably available information to address future long-term water use trends. The 2015 and 2020 UWMP-projected water supply and use data will provide at least 20 years of projected water use and supply information, and a 20-year planning horizon is consistent with the UWMP water service reliability assessment.

There are key considerations for using UWMP data to demonstrate reduced reliance on Delta water, described in the section on Key Data Considerations below.

C.3.3 UWMP WR P1 Consistency Reporting

As noted earlier, Section (c)(1) of WR P1 states that commencing in 2015 Suppliers that have (A) completed an urban water management plan, (B)

implemented the efficiency measures in that plan, and (C) shown a measurable reduction in Delta reliance and improvement in regional self-reliance in the plan, are contributing to reduced reliance on the Delta and consistent with WR P1. The UWMP WR P1 Reduced Reliance Report could be included in an appendix of the 2020 UWMP and as an addendum to an amended 2015 UWMP.

If a Supplier did not include this information in its 2015 UWMP, it is recommended that the Supplier amend their 2015 UWMP with an addendum or similar mechanism to include the information that was originally expected to be in the 2015 UWMP.

It also is recommended that Suppliers use the same baseline for both the 2015 and 2020 UWMPs.

Approach for Amending 2015 UWMP for WR P1 Reporting Reduced Reliance

To provide substantial evidence to demonstrate consistency of a covered Delta water supply action with WR P1, Suppliers who did not include information on reduced reliance in their 2015 UWMP consistent with subdivision (c)(1)(C) WR P1, may want to amend their 2015 UWMP in addition to including the information in their 2020 UWMPs.

A 2015 UWMP can be amended by using the same approach and documentation for reporting reduced Delta reliance that the Supplier developed for the 2020 UWMP, provided that this analysis also includes information for 2015. In other words, the Supplier prepares one analysis to address both 2015 and 2020 reduced reliance reporting and includes the same analysis in both the 2015 and 2020 UWMP.

Suppliers may also elect to amend their 2015 UWMPs concurrent with adoption of their 2020 UWMPs. However, if they choose to follow this amendment process, Suppliers should be clear that they are amending their 2015 UWMP only to report reduced reliance and that this action is separate from adoption of the 2020 UWMP. All public notifications, news publications (Gov Code 6066), and adoption procedures per the Water Code must be adhered to. A checklist has been included at the end of this Appendix to assist Suppliers in making sure amendment notifications have been completed in accordance with Water Code.

Suppliers, in consultation with their legal counsel, may choose to consider an amendment process that does not open the entire plan for review and only addresses the material to be amended. It is up to the Supplier and its legal counsel to determine if an addendum, plan amendment, supplement, or other process would be appropriate to meet the Supplier's concerns and satisfy requirements of WR P1 (CCR 5003).

C.3.4 Key Data Considerations

This section describes some data and documentation considerations that may help Suppliers as they work through quantifying reduced reliance on Delta water.

C.3.4.1 Actual vs. Average-Year Data

For the purposes of quantifying reduced reliance, it is best that data provided reflect an average-year or normal condition, not actual conditions. Actual conditions in a single year are highly influenced by the hydrologic conditions in that year, as well as additional things such as the implementation of statewide conservation regulations and economic factors. Normal or average-year projected conditions incorporate the effects of a large range of hydrologic conditions on forecasts of supplies and demands. Generally, the normal or average-year results shown in a UWMP reflect the average of all modeled hydrologic outcomes under normal conditions.

C.3.4.2 Missing or Unusable UWMP Data

A Supplier's UWMP may not include all the data required to complete this quantification: for example, if a Supplier met Water Code requirements but didn't provide certain data for 2015 needed for this analysis in their 2015 UWMPs or potentially included data for 2015 that reflects actual conditions, rather than average-year conditions. In these cases, the missing or unusable data could be filled in from a previous UWMP or from other documentable sources. This should be documented and explained if used for this exercise.

In some cases, a Supplier may not have a UWMP or a UWMP with usable data prior to the development of the current UWMP. This could occur for several reasons. For example, a Supplier may not have previously been required to complete a UWMP or a Supplier's service area may have changed substantially because of annexations or de-annexations. In these cases, data may need to be obtained from other documentable sources or potentially

from other Suppliers' UWMPs. This should also be documented and explained if used for this exercise.

C.3.4.3 Ensuring Consistent Use of Wholesale and Retail Data

Quantifying reduced reliance can be completed by both wholesale and retail Suppliers in the UWMP. However, care should be taken to ensure that data is being presented in a consistent manner. For example, if demands are determined at the wholesale level and population is determined at the retail level, the calculation of water use efficiency cannot be completed properly.

To ensure that data is used properly across the wholesale and retail levels, Suppliers may need to coordinate their data with other Suppliers or reference the UWMPs or other planning documents of other Suppliers. For example, Suppliers that participate in conjunctive use basins may need to refer to the numbers provided by a regional water resource management agency.

C.3.4.4 Available Data

Suppliers must include information on their water supply, for each supply source, for a normal year, single dry year, multiple dry years, and project water supplies under these conditions in their 2020 UWMP. In the 2015 UWMP, Suppliers reported the current (Table 6-8) and projected (Table 6-9) water supply but did not have to report on supplies from each source and may have summarized supplies in basic categories such as, "Purchased or Imported Water".

To look at reduced Delta reliance, alternative sources of data may be necessary. These data may include water supplies that have moved through the Delta. Delta supplies in this category may consist of water supplies (a) delivered under contract, (b) made available through surplus conditions, and/or (c) acquired through transfer or exchange. These historic deliveries could then form the baseline for assessing changes in Delta reliance.

Alternative data sources will vary from Supplier to Supplier but should be documentable and preferably published or publicly adopted, as appropriate. Examples of alternative data sources include, but are not limited to:

- UWMPs of other Wholesale or Retail Agencies

- SGMA Groundwater Sustainability Plans and models
- DWR Delivery Capability Reports
- Integrated Resources Plans
- Water Supply Master Plans
- Annual Reports
- Recycled Water Master Plans or Annual Reports
- Long-term Conservation Plans
- Reliability Studies

C.3.5 Example Data Analysis and Supporting Documentation

WR P1 subdivision (c)(1)(C) states that reductions in Delta reliance and improvements in regional self-reliance shall be reported in the UWMP as either an amount of water used or as a percentage of water used. The methodology provided in this example can generate both the amount of water used, and the percentage of water used.

The following sections provide an example of how the expected outcome of measurable reduction in Delta reliance can be calculated. This example uses the 20-year planning horizon required for the 2020 UWMP water service reliability assessment with the same option to extend the horizon an additional five-years. Data needed to complete these calculations can typically be found in tables that are already included in UWMPs based on the requirements of the Urban Water Management Planning Act.

- The reduced reliance analysis should also include the following documentation:
- A narrative and justification describing which water supplies are included in the accounting of “Water Supplies that Contribute to Regional Self-Reliance”, and “Water Supplies from the Delta Watershed”, and which are not.
- Documentation of specific sources of data, including table numbers or text locations if from a published plan.

- A detailed description of the methods used. If the example approach is used, it can be cited as the methodology with any departure from this approach described and documented.

C.3.5.1 Example Baseline: 2010

This example uses 2010 as a baseline because the Delta Reform Act was enacted in 2009 and became effective in 2010.

C.3.5.2 Data construct for use in 2015 and 2020 UWMPs

Given this example's 2010 baseline, Suppliers could provide quantification in their UWMP that would look like the example data construct in Figure 1. The example includes data that allows it to be used for both the 2015 UWMP amendment and 2020 UWMP. This data construct could be updated in subsequent UWMP development cycles, with the 2010 baseline remaining in place and the expected outcomes rolling forward to reflect the reporting requirements of the current UWMP¹⁰.

Figure 1. Example Data Construct for Reporting Expected Outcomes in UWMPs

Baseline	Expected Outcomes						
2010	2015	2020	2025	2030	2035	2040	2045 (opt)

Both baseline and expected outcomes values would ideally reflect average or normal year conditions rather than actual. This concept is described in more detail in the discussion of "Key Data Considerations", above.

C.3.6 Steps for Example Approach

This example describes methods Suppliers can use to provide data and analysis that can be used to demonstrate their reliance on Delta water. There are four steps to this process as follows:

1. Quantifying the water use efficiency supply volume - for Suppliers that did not already provide this information in their 2020 WUMP

¹⁰ Water Code, § 10631, subdivision (a) states that UWMP data reporting "shall be in five-year increments to 20 years or as far as data is available".

2. Quantifying total water supplies - for Suppliers that quantified water use efficiency savings separate from total water demands
3. Quantifying water supplies that contribute to regional self-reliance
4. Demonstrating reduced reliance on water supplies from the delta watershed

Step 1: Quantifying Water Use Efficiency Supply Volume

According to WR P1(c)(1)(C), water use efficiency savings are considered a source of water supply. Suppliers that do not explicitly quantify water use efficiency savings in their UWMPs can potentially calculate their embedded water use efficiency savings based on changes in forecasted per capita water use since the baseline. Once calculated, the embedded water use efficiency savings can be added to the expected outcome of water supplies that contribute to reduced reliance on Delta water.

This calculation of per capita water use efficiency savings as an additional supply (WUE Supply) can only be done if the Supplier's demands and population estimates reflect full retail-level data. If there is a mismatch between demand and population (i.e., wholesale-level demand and retail-level population) this calculation cannot be completed properly.

Suppliers that provide a forecast that already explicitly quantifies the water use efficiency savings in their UWMPs do not need to complete this calculation – they have already reported the WUE Supply. Instead, these Suppliers need to calculate the total water supply as described in Step 2, Quantifying Total Water Supplies.

It should be noted that the results of this calculation will likely differ from what a Supplier would calculate under the Water Conservation Act of 2009 (SB X7-7). This example calculation is specific to quantifying WUE Supply for the purposes of reporting reduced reliance consistent with WR P1. Additionally, WUE Supply used for this purpose is based on the example 2010 baseline, whereas the 20x2020 targets and tracking data use a different, longer-term baseline.

Table C-1 provides example calculations for a hypothetical Supplier, and illustrates the data needed to complete the calculation of WUE Supply. The cells highlighted in blue are automatically calculated in tables provided as

part of the worksheet labelled *Blank Data Template* in the Appendix C Example Excel Workbook. The methodology and specific formulas used in this table are described in detail below. Please review the “Key Data Considerations” section above for additional guidance concerning the use of average-year data and how to treat missing or unusable UWMP data.

Table C-1. Example Data Table for Determining WUE Supply

Service Area Water Use Efficiency Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	100,000	101,000	102,010	103,030	104,060	105,101	106,152	107,214
Non-Potable Water Demands	-	-	1,000	1,000	1,500	2,000	2,500	2,500
Potable Service Area Demands with Water Use Efficiency Accounted For	100,000	101,000	101,010	102,030	102,560	103,101	103,652	104,714

Total Service Area Population	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Population	750,000	772,500	795,675	819,545	844,132	869,456	895,539	922,405

Water Use Efficiency Since Baseline (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Per Capita Water Use (GPCD)	119	117	113	111	108	106	103	101
Change in Per Capita Water Use from Baseline (GPCD)		(2)	(6)	(8)	(11)	(13)	(16)	(18)
Estimated Water Use Efficiency Since Baseline		2,000	5,080	7,243	9,990	12,826	15,753	18,274

In this step, the first task is to adjust total service area demands to reflect only demands that can implement water use efficiency measures (i.e., potable residential, agricultural, and commercial, industrial and institutional demands) but still includes the embedded WUE Supply. Demands for non-potable supplies, such as recycling or groundwater recharge, are subtracted from the total service area demands; this is done to reflect the demand hardening aspects of non-potable supplies¹¹.

$$\begin{aligned} &\text{Service Area Water Demands with Water Use Efficiency} \\ &\quad \text{Accounted For} - \text{Non-Potable Water Demands} = \\ &\text{Potable Service Area Demands with Water Use Efficiency} \\ &\quad \text{Accounted For (AF)} \end{aligned}$$

Next, the resulting potable service area demands are divided by the service area population to get per capita water use in the service area in gallons per capita per day (GPCD):

¹¹ Non-potable supplies have a demand hardening effect due to the inability to shift non-potable supplies to meet potable water demands. When water use efficiency or conservation measures are implemented, they fall solely on the potable water users. This is consistent with the approach for water conservation reporting used by the State Water Resources Control Board.

$$\text{Potable Service Area Demands with Water Use Efficiency} \\ \text{Accounted For} / \text{Service Area Population} \times 325851 \text{ (Gal/AF)} / \\ 365 \text{ (Days/Year)} = \text{Per Capita Water Use (GPCD)}$$

The incremental change in per capita water use over time can then be calculated as:

$$\text{Current or Projected Per Capita Water Use} - \text{Baseline Per Capita} \\ \text{Water Use} = \text{Change in Per Capita Water Use from Baseline} \\ \text{(GPCD)}$$

Finally, the changes in per capita water use over time can be applied back to the service area population to calculate the estimated WUE Supply (water use efficiency savings).

$$-1 \times \text{Change in Per Capita Water Use from Baseline} * \text{Service} \\ \text{Area Population} \times 365 \text{ (Days/Year)} / 325851 \text{ (Gal/AF)} = \\ \text{Estimated WUE Supply since Baseline (AF)}$$

This estimated WUE Supply can be considered an additional supply that may be used to show reduced reliance on Delta water supplies.

Step 2: Quantifying Total Water Supplies

This example approach to characterizing water supplies calculates the percentage of water used in terms of average-year demands, rather than average-year supplies. Using average-year demands serves as a surrogate for average-year supplies, which helps alleviate issues associated with how supply capability is presented to fulfill requirements of the UWMP Act versus how supplies might be accounted to report reduced Delta reliance consistent with WR P1 subdivision (c)(1)(C)¹².

In order to calculate the percentage of Delta water used in terms of average-year demands, Suppliers will need to quantify the total supplies,

¹² Water Code, § 10631, subdivision (f) states that UWMP's shall "include a description of all water supply projects and water supply programs that may be undertaken by the Supplier to meet the total projected water use...". The description of all water supply projects and programs available may be greater than is needed to meet the total projected water use; under average conditions all water supply projects and programs may not be needed to meet demands.

which includes the water use efficiency savings attributable to potable water supplies (refer to Step 1).

Suppliers that already explicitly calculate and include water use efficiency savings in their UWMP water use characterization and projections will need to make an adjustment. These Suppliers must add their water use efficiency savings back into their demands to get the surrogate total water supply volumes (total water demand without water use efficiency savings accounted for). Service area demands that do not separate out the savings attributed to water use efficiency are needed to properly calculate changes in regional self-reliance; without this adjustment, the effect of water use efficiency savings would be overestimated. This is done as follows:

$$\begin{aligned} &\text{Service Area Water Demands with Water Use Efficiency} \\ &\quad \text{Accounted For} + \text{Reported WUE Supply} = \\ &\text{Service Area Water Demands without Water Use Efficiency} \\ &\quad \text{Accounted For (AF)} \end{aligned}$$

Suppliers that complete Step 1 would simply record information from Table C-1 in Table C-2 of the Appendix C Example Workbook. In this instance, data for the hypothetical Supplier was taken directly from the example Table C-1 above.

Table C-2. Example Table to Calculate Total Water Supplies.

Total Service Area Water Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	100,000	101,000	102,010	103,030	104,060	105,101	106,152	107,214
Reported Water Use Efficiency or Estimated Water Use Efficiency Since Baseline	-	2,000	5,080	7,243	9,990	12,826	15,753	18,274
Service Area Water Demands without Water Use Efficiency Accounted For	100,000	103,000	107,090	110,273	114,051	117,927	121,905	125,487

Step 3: Quantifying Water Supplies that Contribute to Regional Self-Reliance

For a covered action to demonstrate consistency with the Delta Plan, WR P1 subdivision (c)(1)(C) requires that Suppliers report in the UWMP the expected outcome for measurable improvement in regional self-reliance as a reduction in water used from the Delta watershed. WR P1 does not require that water Suppliers demonstrate measurable improvement in regional self-reliance directly. However, to the extent practicable, it is recommended that Suppliers quantify their investments that contribute to regional self-reliance. Taking this extra step provides documentation that could help support a future certification of consistency for future water supply projects that are covered actions. In addition, it provides a potential alternative accounting of

reduced reliance for Suppliers that may not be able to demonstrate a reduction in Delta supplies, or for Suppliers that may not have access to the data required to calculate reduced reliance in terms of water used from the Delta watershed¹³. In addition, this quantification provides Suppliers with an opportunity to highlight the efforts they have taken to build a resilient water supply portfolio that relies on local and regional supplies working together with investments in water supplies from the Delta watershed.

WR P1 subdivision (c)(2) describes the types of water supplies that are assumed to contribute to reduced reliance:

Programs and projects that reduce reliance could include, but are not limited to, improvements in water use efficiency, water recycling, stormwater capture and use, advanced water technologies, conjunctive use projects, local and regional water supply and storage projects, and improved regional coordination of local and regional water supply efforts.

Using the types of water supplies listed in subdivision (c)(2), this example approach recommends aggregating supplies that contribute to regional self-reliance into the following categories.

- Water Use Efficiency
- Water Recycling
- Stormwater Capture and Use
- Advanced Water Technologies
- Conjunctive Use Projects

¹³ Water Code, § 85021, The policy of the State of California is to reduce reliance on the Delta in meeting California's future water supply needs through a statewide strategy of investing in improved regional supplies, conservation, and water use efficiency. Each region that depends on water from the Delta watershed shall improve its regional self-reliance for water through investment in water use efficiency, water recycling, advanced water technologies, local and regional water supply projects, and improved regional coordination of local and regional water supply efforts.

- Local and Regional Water Supply and Storage Projects
- Other Programs and Projects that Contribute to Regional Self-Reliance

It is unlikely that the categories of supplies shown above will be consistent with how agencies describe supplies in their UWMPs. Suppliers can use their own discretion in completing this quantification in terms of what supplies are included and in what category they are included. For example, a Supplier may choose to only include supplies that represent active investments in regional self-reliance, such as recycling, and omit supplies from more traditional sources, such as groundwater. This example approach includes Table C-3, which allows each Supplier to show its efforts to increase regional self-reliance, even when experiencing losses in other supplies due to uncontrollable factors such as contamination or climate change. Documentation should be provided describing what supplies are included in this inventory and in what category.

Table C-3 provides example calculations for a hypothetical Supplier, and illustrates the data needed to calculate total water supplies that contribute to regional self-reliance under a combined 2015 and 2020 UWMP construct. The cells highlighted in blue are calculated automatically in the tables provided in the Appendix C Example Workbook. Values for water use efficiency (WUE Supply) and service area demands without water use efficiency savings accounted for should be consistent with what was calculated in the previous steps of this example approach.

Table C-3. Supplier Contribution to Regional Self-Reliance

Water Supplies Contributing to Regional Self-Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Use Efficiency	-	2,000	5,080	7,243	9,990	12,826	15,753	18,274
Water Recycling	-	-	1,000	1,000	1,500	2,000	2,500	2,500
Stormwater Capture and Use	-	-	-	-	-	-	-	-
Advanced Water Technologies	10,000	10,000	10,000	10,000	20,000	20,000	20,000	20,000
Conjunctive Use Projects	-	-	-	-	-	-	-	-
Local and Regional Water Supply and Storage Projects	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Other Programs and Projects that Contribute to Regional Self-Reliance	-	-	-	-	-	-	-	-
Water Supplies Contributing to Regional Self-Reliance	60,000	62,000	66,080	68,243	81,490	84,826	88,253	90,774
Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	100,000	103,000	107,090	110,273	114,051	117,927	121,905	125,487
Change in Regional Self Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Supplies Contributing to Regional Self-Reliance	60,000	62,000	66,080	68,243	81,490	84,826	88,253	90,774
Change in Water Supplies Contributing to Regional Self-Reliance	-	2,000	6,080	8,243	21,490	24,826	28,253	30,774
Percent Change in Regional Self Reliance (As Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Percent of Water Supplies Contributing to Regional Self-Reliance	60.0%	60.2%	61.7%	61.9%	71.5%	71.9%	72.4%	72.3%
Change in Percent of Water Supplies Contributing to Regional Self-Reliance	-	0.2%	1.7%	1.9%	11.5%	11.9%	12.4%	12.3%

Once the listed supply categories have been summed to determine the total water supplies contributing to regional self-reliance, the change in those supplies for each outcome year in the analysis can be quantified.

$$\begin{aligned} &\text{Current or Projected Water Supplies Contributing to Regional} \\ &\text{Self-Reliance} - \text{Baseline Water Supplies Contributing to Regional} \\ &\text{Self-Reliance} = \text{Change in Water Supplies Contributing to} \\ &\text{Regional Self-Reliance (AF)} \end{aligned}$$

Water supplies contributing to regional self-reliance can also be expressed as a percentage of the water demands without water use efficiency savings accounted for:

$$\begin{aligned} &\text{Water Supplies Contributing to Regional Self-Reliance} / \text{Service} \\ &\text{Area Water Demands without Water Use Efficiency Accounted} \\ &\text{For} = \text{Percent of Water Supplies Contributing to Regional Self-} \\ &\text{Reliance} \end{aligned}$$

The change in the percentage of regional water supplies can then be evaluated for each outcome year in the analysis to demonstrate increased regional self-reliance.

$$\begin{aligned} &\text{Current or Projected Percent of Water Supplies Contributing to} \\ &\text{Regional Self-Reliance} - \text{Baseline Percent of Water Supplies} \\ &\text{Contributing to Regional Self-Reliance} = \text{Change in Percent of} \\ &\text{Water Supplies Contributing to Regional Self-Reliance} \end{aligned}$$

Step 4: Demonstrating Reduced Reliance on Water Supplies from the Delta Watershed

In order for an agency proposing a Delta water supply covered action to demonstrate consistency with the Delta Plan, WR P1 subdivision (c)(1)(C) requires that Suppliers report in the UWMP the expected outcomes for measurable reductions in supplies from the Delta watershed either as a quantity (AF) or as a percentage of their water supply portfolios. To the extent feasible, this example approach recommends that a Supplier quantify supplies from the Delta watershed in the following categories:

- CVP/SWP Contract Supplies
- Delta/Delta Tributary Diversions

- Transfers and Exchanges of Supplies from the Delta Watershed
- Other Supplies from the Delta Watershed

As described in Step 3, “Quantifying Water Supplies that Contribute to Regional Self-Reliance”, Suppliers can use their own discretion in determining what supplies should be included in these categories. For example, a Supplier that includes their SWP contract supplies in this analysis, might choose to exclude a single-year transfer; Suppliers may show a single-year transfer as a potential source of supply in their UWMP but may not normally use that supply to meet demands under average-year conditions. This approach helps alleviate issues associated with how supply capability is presented to fulfill requirements of the UWMP Act versus how supplies might be accounted for in reporting reduced reliance consistent with WR P1 subdivision (c)(1)(C).

Future Covered Action Supplies

If a Supplier’s UWMP includes supplies from future projects that are covered actions requiring a certification of consistency with the Delta Plan, these projects should be excluded from the accounting of supplies from the Delta Watershed for the reduced reliance analysis. The quantification of reduced reliance described in this example approach can also be used in WR P1 subdivision (a)(2), which evaluates if a failure to reduce reliance significantly caused the need for the proposed water supply covered action. This cannot be done if the water supply from a covered action that will require a certification of consistency with WR P1 is included in the initial quantification. Once a water supply from a covered action has certified consistency with the Delta Plan, it may then be included in the inventory of supplies from the Delta Watershed in the next UWMP cycle. If necessary, this new certified supply can also be included in the current UWMP through an amendment. Documentation should be provided as to what supplies are included in this inventory and in what category.

The following table provides example calculations for a hypothetical Supplier and illustrates the data needed to calculate water supplies from the Delta watershed under a 2015 and 2020 UWMP construct. The cells highlighted in blue are automatically calculated in the example tables provided in the Appendix C Example Workbook. The methodology and specific formulas used in the example table are described in detail below. Please review the “Key

Data Considerations” section for additional guidance concerning the use of average-year data, and how to treat missing or unusable UWMP data.

Table C-4: Calculation of Reliance on Water Supplies from the Delta Watershed

Water Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
CVP/SWP Contract Supplies	42,000	43,400	40,600	40,600	40,600	40,600	36,400	36,400
Delta/Delta Tributary Diversions	-	-	-	-	-	-	-	-
Transfers and Exchanges of Supplies from the Delta Watershed	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Other Water Supplies from the Delta Watershed	-	-	-	-	-	-	-	-
Total Water Supplies from the Delta Watershed	43,000	44,400	41,600	41,600	41,600	41,600	37,400	37,400

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	100,000	103,000	107,090	110,273	114,051	117,927	121,905	125,487

Change in Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Water Supplies from the Delta Watershed	43,000	44,400	41,600	41,600	41,600	41,600	37,400	37,400
Change in Water Supplies from the Delta Watershed	-	1,400	(1,400)	(1,400)	(1,400)	(1,400)	(5,600)	(5,600)

Percent Change in Supplies from the Delta Watershed (As a Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045 (Optional)
Percent of Water Supplies from the Delta Watershed	43.0%	43.1%	38.8%	37.7%	36.5%	35.3%	30.7%	29.8%
Change in Percent of Water Supplies from the Delta Watershed	-	0.1%	-4.2%	-5.3%	-6.5%	-7.7%	-12.3%	-13.2%

Once supplies from the Delta watershed have been totaled, the change over time can be calculated by:

$$\begin{aligned} & \text{Current or Projected Year Water Supplies from the Delta} \\ & \text{Watershed} - \text{Baseline Water Supplies from the Delta Watershed} \\ & = \text{Change in Water Supplies from the Delta Watershed (AF)} \end{aligned}$$

Additionally, the water supplies from the Delta watershed can be expressed as a percentage of Total Water Supplies. Total Water Supplies (demands without removing the water use efficiency savings) can be provided from forecasted data or calculated using the steps described above.

$$\begin{aligned} & \text{Water Supplies from the Delta Watershed} / \text{Service Area Water} \\ & \text{Demands without Water Use Efficiency} = \\ & \text{Percent of Water Supplies from the Delta Watershed} \end{aligned}$$

The change in the percentage of supplies from the Delta watershed for each outcome year can then be evaluated as a change in the percent of water demands.

$$\begin{aligned} & \text{Current or Projected Year Water Supplies from the Delta} \\ & \text{Watershed} - \text{Baseline Water Supplies from the Delta Watershed} \\ & = \text{Change in Percent of Water Supplies from the Delta Watershed} \end{aligned}$$

C.3.7 Documenting Implementation Actions

CCR Section 5003 (c)(1)(B) (WR P1 (c)(1)(B)) requires that all programs and projects included in the UWMP that are locally cost-effective and technically feasible, which reduce reliance on the Delta, are identified, evaluated, and are being implemented. The required reporting on demand management measures (DMMs) pursuant to Water Code Section 10631(e), and description of water supply projects and programs that may be undertaken to meet projected water use pursuant to Water Code Section 10631(f), can be used to support this requirement.

However, in the Reduced Reliance analysis (demonstrating consistency with WR P1), Suppliers may wish to summarize the DMMs implemented or planned for implementation and describe or demonstrate the relationship between the DMMs and reduced Delta reliance. In this discussion, Suppliers can also describe the water supply projects and programs that may be undertaken and their relationship to reduced Delta reliance. Alternatively, Suppliers may wish to describe or demonstrate the relationship between DMMs and water supply projects and programs in relationship to reduced Delta reliance in the UWMP section where these are addressed.

As described above, for a covered action to demonstrate consistency with WR P1 subdivision (c)(1)(B), Water Code § 10631 (f) Suppliers must also include a description of all water supply projects and water supply programs that may be undertaken by the urban water Supplier to meet the total projected water use established pursuant to subdivision (a) of Section 10635. In accordance with Water Code, Suppliers must already include a detailed description of expected future projects and programs that they may implement to increase the amount of the water supply available to them in normal and single-dry water years and for a period of drought lasting five consecutive water years in their UWMP. The UWMP description must also identify specific projects, include a description of the increase in water supply that is expected to be available from each project, and include an estimate with regard to the implementation timeline for each project or program.

The example outlined in this guidance document is designed to help Suppliers report reduced reliance consistent with Delta Plan policy WR P1 subdivision (c)(1)(C) using data and documentation generally available in their UWMPs. This example provides Suppliers with discretion and flexibility

so that they can provide the needed reduced reliance data, while balancing the need for a consistent and defensible approach.

2015 UWMP Amendment Checklist

Notification	Water Code Section	Checkbox
Notification at least 60 days prior to public hearing to any city or county that Supplier will be reviewing plan and considering amendments or changes to plan	§10621(b)	
<ul style="list-style-type: none"> Encourage active involvement of diverse cultural, economic, social elements of service area population 	§10642	
Prior to adopting - Made available for public inspection?	§10642	
Publicly-owned Supplier -	§10642	
<ul style="list-style-type: none"> Notification of time and place of hearing published in your jurisdiction pursuant to Government Code §6066? <ul style="list-style-type: none"> In a newspaper Once a week for 2 successive weeks At least 5 days in between 	§10642	
<ul style="list-style-type: none"> Notification of time and place of hearing to any city or county within which the Supplier provides water supplies in accordance with Government Code Chapter 17.5 beginning with §7290, Use of a Foreign Language in Public Services? 	§10642	
Privately-owned Supplier – equivalent notice within its service area?	§10642	
No later than 30 days after adoption -	§10644(a)(1)	
<ul style="list-style-type: none"> Submitted to DWR? 	§10644(a)(1)	
<ul style="list-style-type: none"> Submitted to the California State Library? 	§10644(a)(1)	
<ul style="list-style-type: none"> Submitted to any city or county within which the Supplier provides water? 	§10644(a)(1)	

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