

Master Response 2.5

Baseline and No Project

Overview

This master response addresses comments regarding the baseline, which is described in Chapter 4, *Introduction to Analysis*, and throughout the substitute environmental document (SED) recirculated in September 2016 (Recirculated SED) in Chapters 5 through 14 and 16. This master response also addresses comments regarding the No Project Alternative, which is described and analyzed in Chapter 15, *No Project Alternative (LSJR Alternative 1 and SDWQ Alternative 1)* and Appendix D, *Evaluation of the No Project Alternative (LSJR Alternative 1 and SDWQ Alternative 1)*. As explained in this master response and in the Recirculated SED, the State Water Resources Control Board (State Water Board) appropriately exercised its discretion as to how existing physical conditions can be most realistically defined and measured in establishing the baseline and how the No Project Alternative should be defined and evaluated.

The comments illustrate the complexities of describing a highly variable environmental setting for purposes of defining the baseline and evaluating environmental impacts in this water quality control planning process. The baseline is typically established at the publication of the Notice of Preparation (NOP). It represents the existing physical environmental conditions by which a lead agency determines whether a project's impact is significant. (Cal. Code Regs., tit. 14, § 15125, subd. (a).) Establishing the baseline allows a lead agency to perform the required comparison between baseline conditions and conditions under described alternatives in order to evaluate the type and magnitude of potential impacts and come to a significance determination. To realistically define and measure the existing physical conditions without the plan amendments, the SED accounts for the natural variability of the Delta and Lower San Joaquin River (LSJR) tributaries and represents changes that have occurred over time in surface hydrology, water diversions, water quality, aquatic resources, and other relevant resources.

The comments also illustrate the complexities of describing the No Project Alternative, which requires identifying, without speculating, the impacts that would occur without approval of the plan amendments. The No Project Alternative is defined as the continuation of an existing plan as currently implemented into the future when a project is a revision of an existing regulatory plan, such as the existing 2006 *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (2006 Bay-Delta Plan). (Cal. Code Regs., tit. 14, § 15126.6, subd. (e)(3)(A).) The No Project Alternative is nonevaluative; its purpose is to “allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project.” (*Id.*, § 15126.6, subd. (e)(1).) The baseline and No Project Alternative need not be the same for the purposes of the California Environmental Quality Act (CEQA), and for the purposes of the SED impact analysis they are not the same because the baseline does not include implementation of the Vernalis flow objectives in Table 3 of the 2006 Bay-Delta Plan. Instead, the State Water Board authorized an alternative flow regime in lieu of the flow objectives under the Vernalis Adaptive Management Plan (VAMP).

The State Water Board reviewed all comments related to the baseline and No Project Alternative and developed this master response to address recurring comments and common themes. This

master response references related master responses, as appropriate, where recurring comments and common themes overlap with other subject matter areas. This master response includes, for ease of reference, a table of contents on the following page to help guide readers to specific subject areas. This master response addresses, but is not limited to, the following topics.

- The scope of the initial NOP (2009) and revised NOP (2011).
- The purpose for, and establishment of, the baseline condition.
- Hydrologic modeling assumptions in the baseline scenario, including VAMP flows and biological opinion (BiOp) flows.
- Other factors considered by the State Water Board, but not included in baseline, such as the San Joaquin River Restoration Program flows.
- The purpose for, and establishment of, the No Project Alternative.
- The modeling assumptions of the No Project Alternative.

For information regarding the hydrologic modeling performed and the assumptions and information contained in the modeled baseline, please see Appendix F.1, *Hydrologic and Water Quality Modeling*, and Master Response 3.2, *Surface Water Analyses and Modeling*. For information related to water quality and the protection of agricultural beneficial uses in the southern Delta, please see Master Response 3.3, *Southern Delta Water Quality*.

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Notice of Preparation

Several commenters addressed the adequacy of the NOP and suggested that the NOP did not provide adequate notice of the plan amendments or that the NOP should be further revised. The grounds for these comments were varied. For example, some commenters believed that baseline conditions had sufficiently changed to warrant releasing a new notice. Others argued that a new or revised NOP was required because the State Water Board recirculated the SED, the State Water Board changed the plan amendment description from that described in the initial or revised NOP, or the State Water Board did not provide notice that it was considering new numeric flow objectives on the three eastside tributaries. These, and similar grounds, do not necessitate a new or revised NOP in connection with the plan amendments.

The State Water Board appropriately provided notice of the plan amendments and opportunity for scoping and public consultation when it issued the initial NOP in 2009 and a revised NOP in 2011.¹ Additional NOPs are not required under CEQA and would not further CEQA's policies of early consultation.

The State CEQA Guidelines establish scoping and consultation guidance for an environmental impact report (EIR). When a lead agency decides that an EIR is required for a project, it must send an NOP to responsible, trustee, and other agencies soliciting information about the scope and content of environmental information to be included in the EIR. (Cal. Code Regs., tit. 14, §§ 15082, 15375.) Prior to completing the draft EIR, the lead agency may conduct early public consultation with any person or organization that may be concerned with the project's environmental impacts. (*Id.*, § 15083.)

The State Water Board has adopted CEQA regulations applicable to certified regulatory programs and substitute environmental documents that provide the board's exclusive procedural requirements for these programs. (Cal. Code Regs., tit. 23, §§ 3720-3781.) The current regulations, took effect in January 2011, after the State Water Board issued its 2009 NOP for the plan amendments.

On February 13, 2009,² the State Water Board issued a Notice of Preparation and of Scoping Meeting for the potential amendments to the Bay-Delta Plan, focusing on the southern Delta salinity objectives and the San Joaquin River flow objectives. The NOP identified the location for the plan amendments as being the Bay-Delta watershed and upstream tributaries, including reservoirs with water that may be used to meet the water quality objectives. A scoping meeting was held on March 30, 2009, to receive public comments. Written comments were also received during the public scoping period from February 13 to March 19, 2009.

In April 2011, the State Water Board issued a revised NOP³ and notice of an additional scoping meeting to clarify the scope of the board's review of the southern Delta salinity and San Joaquin

¹ In 2012, the State Water Board also issued a Supplemental NOP addressing other elements of the Bay-Delta Plan.

² For a copy of the February 2009 NOP, please see:

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/environmental_review/docs/nop2009feb13.pdf.

³ For a copy of the revised April 2011 NOP, please see:

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/docs/notice_sjr_flow_southern_delta_scoping_mtg_with_attachments.pdf.

River flow objectives and scope of environmental documentation supporting that review. The notice clarified the geographic and project scope by including draft language for the southern Delta salinity objectives and San Joaquin River flow objectives and their implementation. The 2011 notice expressly stated that, except as revised by that notice, the February 2009 notice remained in effect. Another scoping meeting was held on June 6, 2011, to provide an opportunity for comment on the clarified scope of the State Water Board's review of the objectives and environmental review. Written comments were also received during the public scoping period, which extended from April 1 to May 23, 2011.

The 2012 Draft SED was completed and released for public review in December 2012. In consideration of the large number of oral and written public comments received concerning that document, the State Water Board prepared the Recirculated SED, which was released on September 15, 2016.

The technical and environmental review processes associated with the plan amendments are highly complex, resulting in a longer process than anticipated. The recent historic drought also affected the State Water Board's schedule for completion of the proposed plan amendments and analyses. After the release of the 2012 Draft SED, the State Water Board worked to refine its modeling approach and to develop more and better information to use in its analyses, based in large part on the multiple comments received on the 2012 Draft SED. Although drought work was a competing priority, information made available due to the drought was incorporated into the expanded analysis.

Thus, at all times since 2009, the State Water Board staff continued to work on the plan amendments even when resources were limited. For example, between 2009 and 2010, the State Water Board took the following actions:

- Held workshops regarding southern Delta salinity and crop tolerance.
- Released the final Hoffman Report (Appendix E, *Salt Tolerance of Crops in the Southern Sacramento–San Joaquin Delta*, of the Recirculated SED).

Between 2010 and 2013, the State Water Board prepared the following reports for public review, which ultimately became appendices to the 2012 Draft SED and the Recirculated SED.

- Draft and peer review versions of the scientific basis technical report (Appendix C, *Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives*).
- Draft report of agricultural economic effects (Appendix G, *Agricultural Economic Effects of Lower San Joaquin River Flow alternatives: Methodology and Modeling Results*).
- Draft hydropower and electric grid analysis (Appendix J, *Hydropower and Electric Grid Analysis of Lower San Joaquin River Flow Alternatives*).

In 2013, the State Water Board conducted two days of hearing and an extended comment period to receive comments on the 2012 Draft SED. In 2015, the State Water Board acknowledged that the historic drought had slowed progress on the board's water quality planning efforts, but that the Legislature's commitment of significant new staffing and budgetary resources had allowed the board to redouble its efforts to update the Bay-Delta water quality objectives (Marcus pers. comm.).

There is no requirement under CEQA or the State Water Board's CEQA regulations to issue additional NOPs or updated versions of an NOP once a lead agency has released a draft

environmental document for public comment and then decides to recirculate the document. The lead agency has already conducted any scoping and public consultation that was required prior to the development and release of the initial draft environmental document. Recirculation requires notice of the document's availability and consultation on the draft environmental document before certifying the EIR, but an additional NOP is not required. (Pub. Resources Code, § 21092.1; Cal. Code Regs., tit. 14, § 15088.5, subd. (d).) In this case, the State Water Board issued its initial NOP in 2009 and a revised NOP in 2011, prior to the release of the initial 2012 Draft SED.

The State Water Board issued the Notice of Completion and Notice of Availability of the Recirculated SED to the State Clearinghouse, interested agencies and stakeholders, and county clerks in the plan area on September 15, 2016. In addition the State Water Board noticed the release of the Recirculated SED in three major newspapers and through the lyris email notification system.

Certain commenters alleged that the plan amendments and the geographic scope of the project differ from the project that was described in the 2009 NOP or 2011 revised NOP. For example, commenters contended that the SED proposes numeric or narrative objectives and other requirements that are different from those that were noticed. Commenters alleged that the 2009 NOP did not identify the project as including new numeric flow objectives on the three eastside tributaries to the San Joaquin River. They also contend that the State Water Board did not provide notice that it planned to review the geographic scope of the Bay-Delta Plan or regulate waters not historically regulated through the Bay-Delta Plan.

Through its 2009 NOP, the State Water Board clearly identified the project location as including the Bay-Delta watershed and its upstream tributaries. The revised 2011 NOP provided additional detail about the project location, expressly identifying the Stanislaus, Tuolumne, and Merced Rivers and channels of the southern Delta. The SED further defines the area subject to regulation through the plan amendments in its description of the planning area and extended planning area, and corresponding map (Chapter 1, *Introduction*, Section 1.2, *Plan Area*). In so doing, the SED also satisfies CEQA requirements to describe and define the project's location.

The State Water Board's authority to adopt water quality control plans is not limited geographically. Diversions of water within and upstream of the Bay-Delta are key drivers of water quality in the Bay-Delta, and the State Water Board is well within its authority to protect Bay-Delta water quality by addressing upstream flow. For a discussion of the State Water Board's authority to impose flow objectives upstream of the Bay-Delta, please see Master Response 2.1, *Amendments to the Water Quality Control Plan*. Thus, the public had sufficient notice and opportunity to comment on the geographic scope of the State Water Board's water quality planning efforts.

Moreover, the State Water Board provided notice that it was considering amending the Bay-Delta Plan to include numeric flow requirements on the three eastside tributaries. The 2009 NOP explained that the State Water Board was reviewing the San Joaquin River flow and southern Delta salinity objectives, which are existing numeric objectives. The revised 2011 NOP provided draft amendments, including a narrative objective for the protection of fish and wildlife beneficial uses implemented in part through numeric requirements. The further refinements of the draft water quality objectives and implementation in the SED are logical outgrowths of the noticed project and in no way hampered the public's ability to comment on significant environmental impacts, alternatives, mitigation measures, or other matters. Indeed, a requirement that a noticed project be identical to the final project would be antithetical to the whole concept of notice and comment and to CEQA's policy of preparing environmental disclosure documents "as early as possible in the

planning process as possible to enable environmental considerations to influence project, program or design.” (*Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 395, as modified on denial of reh'g (Jan. 26, 1989) [discussing the evaluation of future actions].)

In sum, the State Water Board has appropriately provided notice and opportunity for public comment in accordance with applicable legal requirements. Further, it has provided opportunity for additional public engagement through public workshops on technical and scientific issues. For a summary of such opportunities, please see *Executive Summary*, Section ES10.2, *Past Public Review and CEQA Noticing*, and Appendix A, *NOP Scoping and Other Public Meetings*.

Baseline Conditions

Commenters acknowledged the dynamic and variable nature of the environmental conditions in California and in the areas evaluated in the SED, and the complexity of identifying a baseline condition against which environmental impacts can be assessed. In light of these highly variable conditions, including as evidenced by the recent drought, commenters asserted that the baseline conditions used in the SED were out of date or inaccurate.

“The concept of a baseline is a key component in identifying and quantifying a project’s environmental effects.” (*Poet, LLC v State Air Resources Bd.* (2017) 12 Cal.App.5th 52, 78.) In order “to achieve CEQA’s goal of informing decision makers and the public of any significant environmental effects a project is likely to have, the environmental disclosure document (such as an EIR [or SED]) ‘must delineate environmental conditions prevailing absent the project, defining a baseline against which predicted effects can be described and quantified.’” (*Id.* at p. 78, quoting *Neighbors for Smart Rail v. Exposition Metro Line Const. Authority* (2013) 57 Cal.4th 439, 447.) State CEQA Guidelines section 15125, subdivision (a), sets forth the general rule for determining the baseline:

An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation [NOP] is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant.

CEQA, however, does not mandate “a uniform, inflexible rule for determination of the existing conditions baseline. Rather, an agency enjoys the discretion to decide, in the first instance, exactly how the existing physical conditions without the project can most realistically be measured, subject to review as with all CEQA factual determinations, for support by substantial evidence.” (*Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 328.)

Consistent with the State CEQA Guidelines Section 15125(a), the State Water Board generally established the baseline at the time of the NOP (February 2009) as described in Chapters 4, *Introduction to Analysis*, and Chapters 5 through 18, and supporting appendices, including Appendix F.1, *Hydrologic and Water Quality Modeling* (baseline as modeled by the Water Supply Effects [WSE] model) and Appendix G, *Agricultural Economic Effects of the Lower San Joaquin River Flow Alternatives: Methodology and Modeling Results*. In general, the existing conditions assumptions include facilities and ongoing programs that existed as of February 2009 and that provided an accurate picture of the project’s likely impacts.

Environmental conditions in the Bay-Delta and LSJR watersheds, however, are highly variable. As acknowledged in Chapter 4, *Introduction to Analysis*, Section 4.7, *Baseline*, the environmental conditions in the Bay-Delta and San Joaquin River Basin are not static; they are characterized by numerous complex, variable interactions and conditions. For example, the aquatic environment is influenced by tidal variations and inflows from rivers, water diversions, seasonal variations in hydrology, export pumping, and long-term variability in hydrology (Chapter 7, *Aquatic Biological Resources*, Section 7.2 *Environmental Setting*; Chapter 2, *Water Resources*). The baseline environmental condition includes a wide range of variability over time (both within a single year and across different years) and space (tidal to freshwater system, minimally modified landscape to highly modified landscape) (Chapter 4, Section 4.7). Further, the environment has been highly modified in the past and will continue to evolve in the future. (See Wat. Code, § 85003 [legislative acknowledgement of Delta as a unique, dynamic, altered system].)

The courts have acknowledged the challenges in establishing a baseline, particularly under variable conditions, and recognized that the date for establishing baseline cannot be a rigid one. (*Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4th 99, 125; *Communities for a Better Environment, supra*, 48 Cal.4th at pp. 327–328.) “Environmental conditions may vary from year to year and in some cases it is necessary to consider conditions over a range of time periods.” (*Save Our Peninsula Committee, supra*, 87 Cal.App.4th at p. 125.) This can include using an average of conditions over time as the baseline. It can also include making a determination regarding the available information and data that best depicts the environmental setting for a particular resource that will inform decision-making. For example, a lead agency may elect to use older data that is consistent across geographies and sources, rather than less consistent data. Thus, it is within the State Water Board’s discretion to decide how existing physical conditions can most realistically be measured, as long as the board’s determination is supported by substantial evidence.

Defining the baseline is challenging under such variable conditions (Chapter 4, Section 4.7). To take into account natural variability while still representing shifts that have occurred over time, baseline conditions for surface hydrology, water diversions, water quality, aquatic resources, and other relevant resources are characterized based on recent historical conditions using reliable data. (Chapter 4, Section 4.7; Appendix F.1, *Hydrologic and Water Quality Modeling*; Master Response 3.2, *Surface Water Analyses and Modeling*). Certain assumptions associated with the hydrologic, land use, and water quality contexts are discussed further.

Some commenters suggested that the baseline should be updated to reflect changed conditions since 2009, including since the release of the 2012 Draft SED, or to reflect current conditions. A lead agency, however, is not required to continuously revise its baseline as circumstances change. To the contrary, the courts have recognized that environmental conditions may vary from year to year, requiring consideration of conditions over a range of time, or that conditions may change during the period of environmental review. (*Cherry Valley Pass Acres and Neighbors v. City of Beaumont* (2010) 190 Cal.App.4th 316, 336.) A lead agency is not required to try to keep up with a moving target. To ensure that the State Water Board provided the most accurate picture practically possible of the project’s likely impacts, the SED identified relevant environmental conditions at various points in the process.

The State Water Board has revised the SED, incorporating more recent information not available at the time analysis was conducted for the 2012 Draft SED, and based on comments received. Modifications to the WSE model, which considered comments on the 2012 Draft SED, are described in Appendix F.1 *Hydrologic and Water Quality Modeling*. Furthermore, to provide the public and

decision-makers with full disclosure of different effects associated with the recent historic drought between 2012 and 2015, the State Water Board also included different scenarios for groundwater pumping during this period and evaluated model results to determine whether recent drought was comparable to other historical droughts in the baseline study period (Chapters 9, *Groundwater Resources*, 11, *Agricultural Resources*, and 21, *Drought Evaluation*, and Appendix G, *Agricultural Economic Effects of the Lower San Joaquin River Flow Alternatives: Methodology and Modeling Results*). Thus, while the State Water Board generally used the 2009 baseline to evaluate the project's likely impacts, it provided additional information about potential impacts under different conditions, such as the recent drought, even though drought conditions are adequately characterized by the WSE model during the 1922–2003 analysis period.

Commenters also suggested that the baseline should reflect future conditions, such as nearer-term projects in various stages of construction and planning and longer-term potential water supply development in accordance with general plans or agreements. The State CEQA Guidelines, however, clearly establish that a baseline of existing conditions is the norm for an environmental analysis. While CEQA does not preclude an analysis from examining both existing and future conditions baselines, it does not *require* departure from the norm in these circumstances. Here, the SED appropriately delineates the prevailing existing conditions comprising the baseline that informs the disclosure of the likely impacts of the plan amendments. As discussed above, CEQA does not require continuous revisions to the existing conditions baseline. Further, as discussed in Chapter 17, *Cumulative Impacts, Growth-Inducing Effects, and Irreversible Commitment of Resources*, the effects of the cumulative impacts of the LSJR and SDWQ alternatives are discussed in conjunction with past, present and reasonably foreseeable future projects, including projects that are currently under construction or in the final stages of formal planning (see Chapter 16, *Evaluation of Other Indirect and Additional Actions*, Section 16.7, *Cumulative Impacts*, for additional discussion of cumulative impacts). Moreover, to the extent that commenters suggested that the SED should include longer-term future conditions as part of the baseline, any hypothetical conditions projected to prevail in the distant future are dependent on many factors, including outcomes of future public decision-making. Thus, the SED does not consider such future conditions as substantial relevant information that will inform the assessment of impacts in this proceeding.

Hydrologic Context in the San Joaquin River Watershed

In general, the State Water Board uses a baseline that reflects the physical environmental conditions in 2009 as they existed under the 2006 Bay-Delta Plan, as implemented through State Water Board revised Decision 1641 (D-1641). The analyses contained in the SED use the WSE model to represent reservoir operations, river flow, and surface water diversions for a comparative analysis between baseline conditions and plan amendment alternatives (i.e., LSJR alternatives and southern Delta water quality [SDWQ] alternatives).

The modeled baseline (WSE CEQA baseline as described in Appendix F.1, *Hydrologic and Water Quality Modeling*) allocates flow to comply with the 2006 Bay-Delta Plan flow objectives and other requirements that existed in 2009, including implementation of VAMP (which ended in 2011), the National Marine Fisheries Service (NMFS) BiOp flow requirements on the Stanislaus River, Federal Energy Regulatory Commission (FERC) flow requirements on the Tuolumne River and on the Merced River, the Davis-Grunsky Contract between the State of California and Merced Irrigation District, and the Cowell Agreement. The baseline does not include the long-term San Joaquin River Restoration Program (SJRRP) flow requirements, although these conditions are considered in the

cumulative impacts analysis. Periodic exceedances of the interior southern Delta salinity objectives occur in the historical record and likewise remain in the modeled baseline condition.

Because of the variation in annual hydrology, it is difficult to take a “snapshot” of all of the factors that govern water use; rather, trends in water demand must be observed and interpreted over a period of years that represent the modern era. The CALSIM model developed in the early 2000s incorporates water diversion and use data from the 1980s and 1990s. Appendix F.1, *Hydrologic and Water Quality Modeling*, and Master Response 3.2, *Surface Water Analyses and Modeling*, describe how more recent data have been incorporated into the WSE for the best representation of water demand.

An important assumption in the water balance modeling for comparative analysis is inherent in the conceptual difference between the baseline scenario and historical conditions. Historical conditions were used to construct the CALSIM model water balance so that operations reflect infrastructure conditions of the 1980s and 1990s (USBR 2005), but the 82-year hydrologic record is applied to a system assumed to have modern infrastructure. In other words, the large reservoirs that were not constructed until the 1960s and 1970s are assumed to exist from the beginning of the model period in 1922. Likewise, modern levels of development that define water use demands and regulatory streamflow requirements are assumed to be contextually consistent as defined in the modern era and applied for the entire 82-year period. Baseline reflects recent historical conditions for water use demands and system function because demand and infrastructure are similar to 2009 levels. Baseline does not, and should not, be expected to match historical stream flow, reservoir, and water quality conditions, particularly where infrastructure and regulatory conditions are very different from the historical record. In light of these factors, the modeled baseline is a reasonable representation of the existing physical conditions.

The 82-year hydrologic record includes a wide range of hydrologic variability, including droughts and floods. Chapter 21, *Drought Evaluation*, compares WSE model simulations of drought years during the 1922–2003, 82-year record, to the more recent period of 2004–2015, to assess the severity of water supply effects during recent drought conditions compared to severity of water supply effects during the 1922–2003 analysis period. The analyses show that water supply effects during drought conditions are adequately characterized by the WSE model during the 1922–2003 analysis period, water supply effects during the recent drought are not more extreme than drought conditions in the 82-year period from 1922–2003, and there are water supply diversion reductions in many years under different LSJR alternatives compared to baseline.

The WSE model is sufficiently representative of baseline and conditions under different alternatives for a programmatic-level planning tool used to assess the plan amendments in the SED. The WSE model is a monthly spreadsheet model that calculates the monthly flows, reservoir storage levels, and water supply diversions for each eastside tributary based upon user-specified target flows, other user defined inputs, input from CALSIM II, and flood storage rules. The WSE model uses the same node framework, hydrologic input, and similar mechanics and assumptions as the CALSIM II San Joaquin River module (SJR module) node. The SJR module is part of the larger CALSIM II planning model for the entire State Water Project (SWP) and Central Valley Project (CVP) that calculates reservoir operations and Delta operations for a specified set of water resources and level of development (i.e., demands) and regulatory requirements. CALSIM II uses the historical sequence of hydrologic conditions from 1922–2003. WSE produces similar results to CALSIM II given similar operational inputs and is considered an equivalent tool to CALSIM II for the purposes of the comparative analyses performed in the SED.

The WSE baseline conditions were developed and verified by comparison to CALSIM II SJR module results because CALSIM II is a widely accepted and rigorously reviewed planning-level modeling tool for the Central Valley, and contains a longer available dataset for comparison than historical data alone. The State Water Board used the CALSIM II SJR module (USBR 2013a, 2013b) and made minor adjustments to develop the WSE baseline condition. Adjustments from CALSIM II SJR module include an updated representation of the NMFS BiOp Stanislaus River Reasonable and Prudent Alternative (RPA) Action 3.1.3 Table 2E flow requirements. WSE baseline assumptions were modified in response to public comments on the 2012 Draft SED. The adjustments from CALSIM II SJR module and modifications to WSE are described in Appendix F.1, *Hydrologic and Water Quality Modeling*. The WSE model was calibrated for best match to the State Water Board CALSIM baseline diversions, stream flows, and reservoir levels after all of the revisions. This exercise demonstrated the WSE model's effectiveness in representing system dynamics similarly to CALSIM.

The WSE model is used to describe the potential water supply effects of the plan amendments without allocating responsibility to any particular water user. WSE modeling does not allocate obligations to meet baseline flow requirements or LSJR alternatives. The primary utility of a planning-level model is a comparative analysis, where the physical system is represented at a sufficient level of precision in order to accurately represent the most important effects of changes. In this case, the WSE model is configured to determine the change from baseline of water supply stored and available to meet diversion demands because of alternatives incorporating streamflow requirements. The general approach is to calculate available water for diversion in each water year based on inflows, net available water from storage after carryover guidelines, after streamflow targets are met. The State Water Board has not determined who will share in the responsibility for meeting the water quality objectives, which in turns means that the specific water supply impacts are unknown. Appendix K, *Revised Water Quality Control Plan*, and Master Response 1.2, *Water Quality Control Planning Process*, clearly explain that the the assignment of responsibility for implementation will be the subject of future proceedings following adoption of the plan amendments. The purpose of the environmental document is to disclose environmental and other impacts associated with the plan amendments, not to specify the allocation of responsibility for meeting the water quality objective flows.

Some commenters asserted that modeling assumptions for the baseline condition should not have included stream flows required at Goodwin Dam required by the June 2009 NMFS BiOp for salmonid species for several reasons, including the following: the NOP for the SED was published on February 3, 2009, which was prior to the NMFS BiOp; the NMFS BiOp is the subject of reconsultation and litigation; and the NMFS BiOp does not contain best available science. The State Water Board has the discretion to determine which reasonable assumptions should be included to describe baseline conditions. In this case, the NMFS BiOp was included in the assumptions that describe baseline conditions because it was reasonably expected to occur in the foreseeable future and helped to evaluate and disclose impacts.

The NMFS BiOp had been issued in draft form to agencies for peer review in December 2008, prior to February 2009 (NOAA 2009a). The peer review was conducted by the CalFed Independent Science Panel and three scientists selected by the Center for Independent Experts (NOAA 2009b). Furthermore, in January 2009, NMFS hosted weekly meetings with representatives from the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), U.S. Bureau of Reclamation (USBR), and California Department of Water Resources (DWR) at the director, manager, and technical levels, in addition to scheduling meetings on specific topics to address,

clarify, and resolve USBR's and DWR's comments on the draft BiOp and draft RPA (NOAA 2009a). The RPAs were discussed in 2010 and throughout 2011; however, they were not substantially altered from the 2009 RPA (NOAA 2010, 2011). It made sense to include the BiOp because it was anticipated to take final form in the near future and thus was expected to partly define the existing environment for purposes of ascertaining the impacts of the plan amendments and alternatives evaluated in the SED (NOAA 2009a, 2009b).

At the time the State Water Board began preparing the SED, the final outcome of legal challenges to the BiOp was uncertain. The United States Court of Appeals for the Ninth Circuit ultimately upheld the 2009 NMFS BiOp in its entirety, concluding in part that the district court did not afford the agency proper deference to its scientific conclusions where those conclusions were "fairly traceable to the record." (*San Luis & Delta-Mendota Water Authority v. Locke* (9th Cir. 2014) 776 F.3d 971, 996.) The appellate court further noted that it was satisfied that in developing each component of the BiOp, "NMFS used the best scientific data available, even if that science was not always perfect."

Vernalis Adaptive Management Plan

The WSE modeled baseline allocates flow to comply with the 2006 Bay-Delta Plan flow objectives and other requirements that existed in 2009, including VAMP minimum flow requirements per the San Joaquin River Agreement (SJRA). The baseline condition includes VAMP instead of the April–May San Joaquin River pulse flows at Vernalis (Vernalis spring pulse flows) in Table 3 of the 2006 Bay-Delta Plan. VAMP flows are generally lower than the Table 3 flows. The Vernalis spring pulse flows are included in the No Project Alternative conditions, as discussed further.

The State Water Board adopted the Vernalis spring pulse flows in the 1995 Bay-Delta Plan and assigned responsibility for their implementation in D-1641. D-1641 also recognized the SJRA and approved, for a period of 12 years, the implementation of VAMP under the SJRA instead of meeting the San Joaquin River flow objectives in the 1995 Bay-Delta Plan. The VAMP is a 12-year flow study and alternative implementation method designed to evaluate the effects of varying San Joaquin River flow and exports and to protect juvenile Chinook salmon migrating down the river. The SJRA was an agreement by the members of the San Joaquin River Group Authority (SJRGA) to make water available for spring and fall pulse flows, while USBR provided the February–June flows. In 2006, the Bay-Delta Plan was amended to allow VAMP flows in lieu of meeting the Vernalis flow objectives. Nonetheless, VAMP flows were implemented from 2000–2011.

The 2009 baseline used in this SED reflects the physical environmental conditions relating to Vernalis flows as they had existed since 2000. The State Water Board issued the first NOP for the update to San Joaquin flow objectives in February 2009. At the time of the NOP, VAMP had been conducted for nearly 9 years and was set to expire several years after the NOP, on December 31, 2011. There were discussions about further agreements to continue VAMP-like flows after 2011.

Some commenters asserted that using VAMP as part of the baseline is inappropriate because VAMP was never fully implemented, it is difficult to calculate the actual quantities of water released to meet VAMP flows, and VAMP ended in 2011. VAMP flows are the best available representation of the baseline physical conditions (flows) on the San Joaquin River at Vernalis as of 2009. The quantities of water required to meet VAMP can be calculated per the VAMP agreement and were reported annually in VAMP technical reports (SJRGA 2013). Hydrologic conditions during the 12-year VAMP period did not provide the desired flow levels, export conditions, and barrier conditions for fish survival scientific investigations, and as a result some commenters asserted that VAMP was not fully

implemented. However, spring pulse flow targets under VAMP were met by observed flows at Vernalis (Table 2-8 in 2011 VAMP report) illustrating that using the VAMP flow requirements in the WSE model baseline scenario is a reasonable representation of baseline conditions.

At the time of the 2009 NOP, VAMP flows characterized flow requirements and resulting flows during the regulated spring flow, spring pulse flow, and fall pulse flow periods. In contrast, at that time, the Table 3 Vernalis spring pulse flows had never been implemented and it would not have been appropriate to include them as part of the baseline conditions. In addition, it was uncertain, for a time, whether VAMP or a similar agreement would be temporarily extended beyond 2011 and whether VAMP-like flows would continue to be part of the existing condition.⁴ In 2012, USBR proposed a 2-year agreement to purchase water from Merced Irrigation District for continued implementation of Vernalis spring pulse flow objectives, intended as a “stop-gap” measure until new San Joaquin River flow objectives were adopted by the State Water Board. The proposed agreement would have allowed USBR to purchase water from Merced Irrigation District to meet the spring pulse flow objective and to operate New Melones Reservoir “in the same manner as it has been historically operated during the SJRA to meet base flow objectives under D-1641 (February through April 14 and May 16 through June)” (USBR 2012). Although the proposed agreement ultimately was not successful, this information helps to demonstrate the possibility, during the early stages of preparation of the SED, that VAMP-like flows might continue.

Some commenters asserted that using VAMP flows as part of the baseline underestimates water supply effects on water users relying on the Tuolumne and Merced Rivers because implementation of VAMP used flow from the Stanislaus, Tuolumne, and Merced Rivers. Commenters asserted that a baseline without VAMP would require meeting the San Joaquin River flow objectives at Vernalis using water only from the Stanislaus River. During VAMP, a portion of the flows needed to comply with VAMP came from the three eastside tributaries even though the 2006 Bay-Delta Plan and D-1641 do not contain numeric or narrative flow requirements specific to these rivers. D-1641 allowed flow requirements to be met with water from sources other than the New Melones Reservoir on the Stanislaus River, such as purchase of water from water districts on the Stanislaus, Tuolumne, or Merced Rivers. Since the end of VAMP, federal, state, and local agencies have continued to coordinate or attempted to coordinate (2012 agreement with Merced) releases of water to meet Vernalis flow objectives (Knell pers. comm.) demonstrating that using water from other tributaries and reservoirs for achieving flow requirements, consistent with VAMP, is an appropriate baseline assumption.

The 2006 Bay-Delta Plan Vernalis flow objectives in Table 3 have not consistently been attained since the end of VAMP (Howard pers. comm. a). In 2017 the State Water Board Executive Director recognized that “Reclamation’s ability to meet the April–May pulse flow requirement has become more difficult now that the SJRA has expired. The Board was aware of these issues when it adopted D-1641.” (Howard pers. comm. b.) The Executive Director suggested that “a reasonable path forward is for Reclamation and Board staff to meet each winter and agree on a prudent operation until such time as new flow objectives are implemented.” (Howard pers. comm. b) These circumstances support the determination that flows less than the Table 3 Vernalis flow requirements, as represented in VAMP, are an appropriate characterization of baseline conditions.

⁴ “Reclamation and the SJRGA twice attempted to negotiate an extension of the SJRA flow implementation provisions beyond December 31, 2011, but those negotiations proved unsuccessful.” (2012 Bureau of Reclamation Draft Environmental Assessment/Initial Study San Joaquin River Flow Modification Project, p.1).

For these reasons, including VAMP as part of the baseline is a reasonable representation of the physical environment with respect to flow conditions at the time of the NOP.

The WSE modeled baseline incorporates VAMP flow requirements and provides a reasonable estimation of baseline conditions to be used for comparative analysis in the SED. The LSJR alternatives, including the No Project Alternative, do not include VAMP flows. Please refer to SED Appendix F.1, *Hydrologic and Water Quality Modeling*, for additional details regarding assumptions and inputs to the WSE baseline.

Sustainable Groundwater Management Act

Some commenters have stated that the State Water Board should have accounted for the Sustainable Groundwater Management Act (SGMA) (Wat. Code, § 10720 et seq.) in the baseline conditions evaluated in the SED. As discussed previously, the State Water Board generally established the existing setting at the time of the 2009 NOP. SGMA, however, had not been enacted at that time and did not take effect until January 1, 2015. Accordingly, the State Water Board appropriately included potential effects associated with the implementation of SGMA in the cumulative impact analysis of the plan amendments in Chapter 17, *Cumulative Impacts, Growth-Inducing Effects, and Irreversible Commitment of Resources*. The State Water Board has explained that the Recirculated SED includes changes made in the response to the passage of SGMA and the State's adoption in 2014 of a state policy for sustainable groundwater management. (Wat. Code, § 113.) These legislative enactments, however, have not altered the existing environment evaluated in the SED, in part, because the legislation has not been fully implemented and will not be fully implemented for years. SGMA was enacted in 2015, well after the State Water Board began its environmental analysis. Therefore, because its effects were not felt when the State Water Board began its environmental analysis and will not be felt in the short term, SGMA is appropriately considered a future condition in the cumulative impact analysis when viewed in combination with the plan amendments. Please see Master Response 6.1, *Cumulative Analysis*, for more information regarding the cumulative impact analysis in general and as it relates to SGMA specifically.

The State Water Board also appropriately considered SGMA as feasible mitigation to reduce potential significant impacts on groundwater resources in Chapter 9, *Groundwater Resources*. As described in Chapter 9 and Master Response 3.4, *Groundwater and the Sustainable Groundwater Management Act*, the SGMA deadlines for state intervention are still prospective; therefore, mitigation measures implemented by the State Water Board to protect the groundwater basin from the indirect impacts of the plan amendments are infeasible at this time separate and beyond actions required by SGMA. But mitigation under local authorities is both feasible and required by SGMA.

San Joaquin River Restoration Program

Some commenters stated that the SJRRP flows should be included in the baseline. As described in part in Chapter 5, *Surface Hydrology and Water Quality*, Section 5.2.2, *Upper San Joaquin River*, the SJRRP is the result of a settlement (Stipulation of Settlement (Settlement) in *Natural Resources Defense Council, et al., v. Rodgers, et al.* (E.D.Cal. 2006, Case No. CIV S-88-1658 LKK/GGH) reached in 2006 regarding the restoration of fish habitat in the San Joaquin River below Friant Dam and ending a lengthy legal dispute over the operation of the dam. Congress provided federal authorization for implementing the settlement in the San Joaquin River Restoration Settlement Act, Public Law 111-11, section 10001 et seq. The settlement established two primary goals: (1) a restoration goal to restore and maintain fish in good condition in the mainstem San Joaquin River below Friant Dam to

the confluence of the Merced River; and (2) a water management goal to reduce or avoid adverse water supply impacts on all of the Friant Division long-term contractors that may result from flows provided for in the settlement. Interim flows were to commence no later than October 1, 2009, and full restoration flows were to commence no later than January 1, 2014. The SJRRP, which was established to implement the settlement, provides for releases of interim flows and restoration flows that are ultimately intended to reconnect the river upstream of the Friant Dam to the Upper San Joaquin River at the mouth of the Merced River. State Water Board approval of changes to USBR's water rights was required before USBR could release and redivert water on either an interim or long-term basis.

Although the settlement was signed in 2006, the first interim flows were not released until October 2009. The purpose of the interim flow program was to collect relevant data on flows, temperatures, fish needs, seepage losses, and water recirculation, recapture and reuse. The settlement required appropriate entities to develop and recommend implementation of the interim flow program, including by releasing specified flows depending on the year, to the extent that the flows would not impede or delay completion of certain channel and structural improvements or exceed existing downstream channel capacities. Implementation of the interim flows required a determination of the then-existing channel capacity and the impact of the flows on channel construction work. The longer-term restoration flows did not begin until January 2014 (SJRRP 2017).

The State Water Board considered the SJRRP in its cumulative impact assessment rather than baseline primarily because neither the interim flows nor the restoration flows were part of the existing environment at the time of the 2009 NOP (Chapter 16, *Cumulative Impacts*, Table 16-1 *Cumulative Project List*; Chapter 5, *Water Supply, Surface Hydrology and Water Quality*, Section 5.22, *Upper San Joaquin River* of the 2012 Draft SED.) Between the time that Friant Dam began operating in the late 1940s and the time of the 2009 NOP, water released from Friant Dam often did not reach the LSJR and the Merced River confluence due to diversions upstream (Chapter 2, *Water Resources*, Section 2.2.3, *Flow Requirements*). The restoration flows were not scheduled to begin for several years, no later than 2014, and could not reasonably be considered part of the existing environment in 2009.

The amount of water that actually would reach the Merced River was uncertain in 2009 due to limitations in downstream channel capacities, impacts on channel construction work, seepage impacts, water year type, and other factors. At the time of the February 2009 NOP, the required water releases from Friant Dam were established in the settlement; however, the necessary environmental disclosure documents to implement the interim and restoration program had not yet been approved and USBR had not yet requested approval from the State Water Board for the necessary changes to its water rights. In addition, facilities identified in the settlement needed to be built or modified according to the timeframe established in the settlement and with the restoration flows, which extended past 2016. As for the interim flows, it wasn't until September 25, 2009, that USBR issued a Finding of No Significant Impact and DWR issued a Mitigated Negative Declaration for the Water Year 2010 Interim Flows Project. The State Water Board issued its conditional approval on October 1, 2009, and the first interim flows were released that day (State Water Board 2009). Additional approvals to implement the interim flow program were issued over the next few years. In 2012, USBR submitted a long-term change petition to implement the long-term provisions of the restoration program, which the State Water Board's Division of Water Rights approved in 2013 (State Water Board 2013).

Other Factors

Some commenters suggested that the baseline established in the 2016 Recirculated SED should include additional information such as reports on fishery needs, the use of water for agriculture flows as compared to flows for environmental uses, the purported over-allocation or over-appropriation of water in the stream system, or an analysis of the *Development of Flow Criteria for the Sacramento–San Joaquin Delta Ecosystem* (2010 Delta Flow Criteria Report) flows (State Water Board 2010a).

As explained previously, however, the Recirculated SED delineates the environmental conditions existing at the time the environmental analysis is performed in order to evaluate the environmental impacts of the plan amendments. Information that does not describe the existing environment was appropriately excluded from the baseline condition described in the Recirculated SED because it does not inform an assessment of the plan amendments' environmental impacts. For example, the flows identified in the State Water Board's 2010 Delta Flow Criteria Report have never been implemented and are not part of the existing environment. As described in Master Response 1.2, *Water Quality Control Planning Process*, regarding the 2010 Delta Flow Criteria Report, the criteria were developed in part to inform planning processes for the Delta Plan. (Wat. Code, § 85086; State Water Board 2010a.) The Delta Flow Criteria Report identified the flows that would protect public trust resources in the Delta under certain narrow analytical constraints, but those flows have never been required. Instead, the Delta Flow Criteria Report has informed the development of the water quality objectives considered in the plan amendments.

Moreover, the State Water Board used the best available information to describe the existing environment and to inform the baseline. For example, the Recirculated SED describes the fishery condition in Chapter 7, *Aquatic Resources*, and in Appendix C, *Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives*. Water supply issues and historical flows are discussed, in Chapter 5, *Surface Hydrology and Water Quality*. Thus, the Recirculated SED discloses the existing conditions against which impacts are evaluated.

Some commenters stated that the 2012 Draft SED's existing setting for hydrology in Chapter 5, *Surface Hydrology and Water Quality*, fails to disclose the State Water Board's actions on temporary urgency agency change petitions. At times the State Water Board has conditionally approved requests to temporarily amend certain conditions of DWR's or USBR's water rights for the SWP or CVP imposed under D-1641 that require the agencies to meet water quality objectives in the Bay-Delta Plan. For example, in response to the recent unprecedented drought conditions between 2014 and 2016, DWR and USBR jointly and individually filed temporary urgency change petitions pursuant to Water Code section 1435 et seq. to temporarily change their water rights for the SWP and CVP to modify various conditions, including San Joaquin River flow requirements. As another example, in 2016 USBR also filed a temporary urgency change petition under Water Code section 1435 et seq. to temporarily modify its water rights for the New Melones Project establishing flow requirements on the San Joaquin River at Vernalis in order to conserve reservoir storage levels and provide sufficient carryover storage into water year 2017 to meet federal and other fishery requirements.

The State Water Board's conditional approvals solely amended DWR's and USBR's water rights under state law and did not amend, suspend, or relax the water quality objectives in the Bay-Delta Plan. (State Water Board 2015, 2016; see also USEPA 2017) [concluding that the temporary urgency change petitions issued by the State Water Board in 2014–2016 did not change the water quality

objectives or establish new ones].) Further, as discussed previously, the State Water Board generally established baseline conditions in 2009. The State Water Board's approval of temporary urgency change petitions after 2009 are not part of the baseline conditions considered in the Recirculated SED.

Other commenters questioned whether the baseline should include the assumption that USBR would make releases to meet the existing San Joaquin River flow objectives. This assumption was reasonable because USBR is required to meet the existing San Joaquin River flow objectives as a condition of USBR's water rights for New Melones Reservoir. The existing San Joaquin River Flow objectives include "spring flows" from February 1 – April 14 and May 16 – June 30, "spring pulse flows" from April 15 – May 15, and "fall flows" that apply for two weeks in October. The SJRA and VAMP focus on the "spring pulse flows" and the tributaries' contributions. In D-1641, the State Water Board amended USBR's water rights and required USBR to meet the flow objectives on an interim basis until the board assigned permanent responsibility for meeting the objectives. The State Water Board has not assigned such permanent responsibility for meeting the objectives to other entities. Although USBR has taken the position that it no longer has responsibility for meeting the San Joaquin River flow objectives because the San Joaquin River Agreement expired in 2011, the State Water Board has concluded that the water right requirement is unequivocal (Howard pers. comm. a, b).

Land Use Context

In order to reasonably protect fish and wildlife, the plan amendments would increase the volume of water instream in some years, thus reducing the water available for other beneficial uses, such as agriculture. To evaluate the potential water supply effects to the physical environment and to the local and regional economy, the State Water Board relied on the irrigation district agricultural water management plans (AWMPs), information provided directly by the irrigation districts themselves, and detailed analysis unit (DAU) data from DWR. This information was used to characterize the acres of irrigated land and the crop distribution of each irrigation district in the plan area under baseline conditions in Appendix G, *Agricultural Economic Effects of the Lower San Joaquin River Flow Alternatives: Methodology and Modeling Results*, and Chapter 11, *Agricultural Resources* (Table 11-2, *California Department of Conservation's Land Use Classification Acreage in the LSJR Area of Potential Effects*, Table 11-5, *Crop Production in the LSJR Area of Potential Effects by DAU [acres]*, Table 11-6, *Crop Production in the LSJR Area of Potential Effects by DAU [percent]*, Table 11-12, *Average Annual SWAP Baseline Acreage and Percent by Crop Category for Each Irrigation District*, Table G.4-1, *Irrigation District Irrigated Acres*, and Table G.4-3, *Estimated 2010 Crop Distribution for Each Irrigation District and DAU [acres]*).

The State Water Board's analysis illustrates the challenges a lead agency faces in determining baseline conditions when physical conditions are subject to fluctuations or historical data varies by source. The State Water Board attempted to use agricultural data and land use information from periods close to the baseline year of 2009. Acreages and crop distributions change from year to year, as individual growers make new cropping decisions based on their unique circumstances and the current economic and environmental conditions. Several commenters noted the differences between irrigation district crop distributions used in the 2012 Draft SED (based on DWR DAU data for 2010) and the more recent irrigation district crop distributions published in the AWMP. In addition, commenters noted that irrigation district crop distributions have changed since 2010, particularly with reference to the impact of the 2013–2015 drought. As discussed previously,

however, CEQA does not require a lead agency to continuously update the baseline as crop distributions and acreages change.

Crop distributions used in the agricultural economic analysis are based on DWR county land use surveys for San Joaquin, Stanislaus, and Merced Counties (survey years are presented in Table G.4-2 of Appendix G). Survey results were updated to represent more recent land use conditions in 2010 by DWR based on 2010 County Agricultural Commissioner Reports and were summarized by DAU. Several commenters questioned why the DWR data was used to represent the crop patterns of the irrigation districts when crop data was available in the district AWMPs. The DWR DAU data was used for the analysis because it is part of a consistent statewide database supported by a sister agency. DWR's land use database has been used to support other water resource planning projects, such as the *California Water Plan Update 2013* (DWR 2014). Further, the State Water Board disclosed the differences between the DWR DAU and 2012 AWMP crop distributions in Appendix G, Attachment 1, and identified differences in the data between these sources. CEQA, however, does not require a lead agency to reconcile different data sources but instead provides the lead agency with the discretion to decide how to realistically measure existing physical conditions without the project. Therefore, the use of DWR DAU crop distribution data provided a reasonable representation of baseline because it realistically characterizes "existing conditions" as a range of conditions over time in which to accurately evaluate impacts. For more information regarding estimation of district irrigated acreages and crop distributions and how they were incorporated into the SED environmental and economic analyses, please see Master Response 3.5, *Agricultural Resources*, and Master Response 8.1, *Local Agricultural Economic Effects and the SWAP Model*.

Water Quality and Salinity Context

The SED appropriately describes the baseline water quality conditions of the plan area as the physical environmental and regulatory conditions existing as of 2009 (Chapter 4, *Introduction to Analyses*). With respect to salinity in the southern Delta, the baseline includes physical conditions that existed under the 2006 Bay-Delta Plan, which is currently in effect, as implemented through D-1641. The 2006 Bay-Delta Plan requires southern Delta salinity levels, measured as electrical conductivity (EC), be maintained at or below 0.7 millimhos per centimeter (mmhos/cm) during the April–August period (summer irrigation season). It also requires salinity levels be maintained at or below 1.0 mmhos/cm during the September–March period (winter irrigation season). Compliance is measured on the San Joaquin River at Vernalis and at three stations in the interior southern Delta: San Joaquin River at Brandt Bridge, Old River at Middle River, and Old River at Tracy Road Bridge.

Some commenters stated that the 2012 Draft SED's existing setting for hydrology in Chapter 5, *Surface Hydrology and Water Quality*, fails to disclose exceedances of the southern Delta salinity objectives. As discussed previously, environmental impacts are examined in light of the existing environment, or baseline. The model baseline conditions describe the variable hydrologic environment by encompassing 82 years of historical climate data. For information regarding the hydrologic modeling performed and the assumptions and information contained in the modeled baseline, please see Master Response 3.2, *Surface Water Analyses and Modeling*. This period adequately represents salinity conditions in the southern Delta and provides sufficient information to assess potential impacts.

The current southern Delta salinity objectives, the history of salinity regulation in the southern Delta, and historical conditions and factors affecting salinity in the southern Delta are described in the SED in Chapter 5, Chapter 23, *Antidegradation Analysis*, and Appendix C, *Technical Report on the*

Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives. As described in the SED, salinity conditions in the southern Delta historically have been influenced by many factors, including agricultural diversions and high salinity runoff from agricultural land, tidal influences, variable streamflow, and the completion of state, federal, and local water projects (see, e.g., Chapter 23, Section 23.5.1, *Salinity*).

Currently, DWR's SWP water rights and USBR's CVP water rights are conditioned on implementation of the salinity objectives at the three southern Delta station downstream of Vernalis. USBR's CVP water rights under which it delivers water to the San Joaquin River Basin are also conditioned on meeting the salinity objectives in the San Joaquin River at Vernalis. Compliance with the interior southern Delta salinity objectives has not always been achieved. Thus, intermittent exceedances of the salinity objectives are part of the baseline conditions. The State Water Board's exercise of its enforcement discretion, and whether or not the salinity exceedances are characterized as violations, does not affect the 2012 Draft SED's description of the existing environment. (See *Riverwatch v. County of San Diego* (1999) 76 Cal.App.4th 1428, 1453 [CEQA did not require accounting for prior illegal activity in developing baseline conditions]; *Eureka Citizens for Responsible Government v. City of Eureka* (2007) 147 Cal.App.4th 357, 370 [preparation of an EIR is not generally the appropriate forum for resolving issues of prior conduct].)

The temporary barrier program is part of the baseline condition. As described in Chapter 5, *Surface Hydrology and Water Quality*, DWR initiated the South Delta Temporary Barriers Project in 1991 to maintain water levels suitable for agricultural diversions in southern Delta channels (DWR 2018). At times, the barrier's culverts can be operated to help benefit water quality in the southern Delta by improving circulation in null zones where salts tend to collect. Both D-1641 and the 2006 Bay-Delta Plan envisioned permanent operable barriers as one of the solutions to salinity problems in the southern Delta. Due to concern regarding the impact such barriers could have on migratory fish, implementation of any such barrier project has been postponed indefinitely. As a result, The South Delta Temporary Barriers Program continues. Please refer to Chapter 5 and Master Response 3.3, *Southern Delta Water Quality*, for additional information about south Delta temporary barriers.

The historical record includes periodic exceedances of the interior southern Delta salinity objectives. These exceedances are included as part of the historical range of salinity conditions analyzed in Chapter 5 and in Appendix F.1, *Hydrologic and Water Quality Modeling*. It has not always been possible to meet current standards at the interior southern Delta stations, even though flows are released by USBR from New Melones to meet the Vernalis EC objective in Table 2 of the current Bay-Delta Plan. Therefore, modeled baseline conditions only require compliance with the salinity objective at Vernalis, and include similar periodic exceedances of the salinity objective at the interior stations.

In the WSE model, baseline EC at Vernalis was estimated using monthly EC values for 1922 to 2003 from CALSIM II. The CALSIM II EC values were adjusted based on the ratio of Vernalis flow as calculated in the WSE model compared to the flow in CALSIM II. To determine baseline salinity at the interior Delta stations empirical formulas that related Vernalis salinity to salinity at interior Delta stations were developed based on historical salinity data. These formulas established EC increments, which represent the increase in salinity from Vernalis to the next station due to additional salt introduced downstream from Vernalis. For more information on how EC was calculated in the WSE model, please refer to Appendix F.1, Section F.1.5.1, *Salinity Modeling Methods*.

For more information regarding estimation of south Delta salinity and SDWQ plan amendments regarding summer months, please see Master Response 3.3, *Southern Delta Water Quality*.

No Project Conditions

Multiple commenters asserted the description of the No Project Alternative in Chapter 15, *No Project Alternative (LSJR Alternative 1 and SDWQ Alternative 1)*⁵ and Appendix D, *Evaluation of the No Project Alternative (LSJR Alternative 1 and SDWQ Alternative 1)*, is infeasible, is inaccurate, or does not represent conditions under the No Project Alternative.

As described in Chapter 15⁶ and Appendix D, the State Water Board has described, modeled, and evaluated the potential physical environmental impacts associated with the No Project Alternative. The No Project Alternative analysis in Chapter 15 conforms to CEQA's policies of public disclosure and informed decision-making by providing information about the impacts of not approving the plan amendments. This allows decision-makers to compare the impacts of approving the plan amendments with the impacts of not approving the plan amendments or alternatives. (Cal. Code Regs., tit. 14, § 15126.6, subd. (e)(1).)

When the project is the revision of an existing land use or regulatory plan, policy or ongoing operation, the “no project” alternative *will be the continuation of the existing plan, policy or operation into the future*. Typically this is a situation where other projects initiated under the existing plan will continue while the new plan is developed. Thus, the projected impacts of the proposed plan or alternative plans would be compared to the impacts that would occur under the existing plan. (*Id.*, § 15126.6, subd. (e)(3)(A), italics added.)

The No Project Alternative assumes the plan amendments described in Appendix K, *Revised Water Quality Control Plan*, Chapter 3, *Alternatives Description*, and analyzed in Chapters 3 through 14 and 16 through 23, would not be implemented and examines “what would be *reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services*” by including an analysis of full compliance with D-1641. (*Id.*, § 15126.6, subd. (e)(2), italics added; see also similar language in subd. (e)(3)(C).) The SED provides information by which the environmental advantages and disadvantages can be evaluated.

The No Project Alternative described and analyzed in the SED is the continuation of the 2006 Bay-Delta Plan, as implemented through D-1641 (revised March 15, 2000). This includes implementation of the San Joaquin River at Vernalis flow objectives (also referred to as the LSJR flow objectives) and the southern Delta salinity (EC2) objectives (including the salinity objective on the San Joaquin River at Vernalis). The No Project Alternative focuses on effects related to implementation of Vernalis flow and southern Delta salinity objectives because these objectives would be amended as described in Appendix K and Chapter 3. As described in Chapter 18, *Summary of Impacts and Comparison of Alternatives*, the No Project Alternative would not avoid impacts relative to the other alternatives

⁵ Lower San Joaquin River (LSJR) Alternative 1 and Southern Delta Water Quality (SDWQ) Alternative 1 are referred to as the No Project Alternative in the SED.

⁶ CEQA requires an evaluation of the No Project Alternative. CEQA does not require this analysis to be contained in the same chapter as other alternatives. Chapter 15 provides a comprehensive discussion of the No Project Alternative across all resource areas. Chapter 18 provides a summary of all alternatives, including the No Project Alternative so that readers can compare potential impacts across alternatives.

evaluated. It also would not satisfy the eight purposes and goals of the plan amendments, described in Chapter 3. The No Project Alternative would not satisfy these purposes and goals, in part, because it does not allow for flows that more closely mimic the natural hydrographic conditions, it does not provide flows in the geographic area under consideration (it does not allow for flows on the three eastside salmon-bearing tributaries) and it does not allow for adaptive implementation.

CEQA does not require the baseline and the No Project Alternative to be the same. Indeed, CEQA accounts for differences between the baseline and No Project Alternative, stating “[t]he no project alternative analysis is not the baseline for determining whether the proposed project’s environmental impacts may be significant, unless it is identical to the existing environmental setting analysis which does establish that baseline.” (*Id.*, § 15126.6, subd. (e)(1).) The No Project Alternative conditions differ from the baseline because the Vernalis flow objectives in Table 3 of the 2006 Bay-Delta Plan have not been fully implemented and are not part of the baseline because of implementation of the SJRA and VAMP. The 2009 NMFS BiOp, as discussed in *Other Factors*, was included in the No Project Alternative modeling because it was an action that was reasonably expected to occur in the foreseeable future and was necessary to evaluate impacts.

The SED analysis of the No Project Alternative is consistent with the requirements of CEQA because it describes and evaluates reasonably foreseeable actions and trends expected to occur under the continuation and implementation of the existing Bay-Delta Plan. Some commenters suggested that the No Project Alternative cannot include any action. Commenters suggested that the No Project Alternative should not just be a continuation of the 2006 Bay-Delta Plan, but the absence of the plan. As discussed previously, however, CEQA does not contemplate that the alternative be frozen in time, or that it cannot involve any action, but to the contrary, contemplates reasonably predictable actions associated with the continuation of the plan. For the No Project Alternative to include no Bay-Delta Plan at all, and to merely include other existing programs, is legally and practically infeasible given that it would involve revoking the Bay-Delta Plan entirely and it is also inconsistent with CEQA guidance for projects involving plans.

Moreover, the State Water Board is not obligated to examine every variation of the No Project Alternative. An EIR “need not consider ‘an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative’ (Guidelines, § 15126.6(f)(3)), an EIR is not obliged to examine ‘every conceivable variation’ of the ‘no project’ alternative [citation omitted].” *Planning and Conservation League v. Castaic Lake Water Agency* (2009) 180 Cal.App.4th 210, 246.) Some commenters suggested that the No Project Alternative should include existing regulations and conditions that would otherwise protect fish and wildlife and achieve the goals of the Project but did not identify specific projects. As discussed in this master response, the No Project Alternative includes the NMFS BO. While local entities may undertake voluntary projects that will protect fish and wildlife projects, the SED appropriately included existing requirements rather than voluntary measures. Chapter 15, Section 15.2, *Description of the No Project Alternative*, acknowledges that there are other possible ways to achieve compliance with the objectives, but it is speculative to identify which other measures, or combination of measures, would be used. For example, agreements could be developed to implement the flow objectives, but at the time of the NOP, and even to date, such agreements have not been presented to the State Water Board. The State Water Board will not speculate on such matters. The State Water Board has conservatively analyzed and disclosed the most severe range and magnitude of impacts that could occur under a No Project Alternative in Chapter 15. Furthermore, the State Water Board identified where flows might be

similar to baseline in the analysis of No Project Alternative on the Tuolumne River or in certain circumstance on the Merced River (Section 15.3.2, *Tuolumne, Merced, and Lower San Joaquin Rivers*).

Some commenters asserted that modeling assumptions for the No Project Alternative should not have included stream flows at Goodwin Dam required by the June 2009 NMFS BiOp for salmonid species because they believe that the NMFS BiOp is the subject of reconsultation and litigation and does not contain best available science. The State Water Board has the discretion to determine which reasonable assumptions should be included in the analysis of a no-project alternative. In this case, the NMFS BiOp was included in the conditions supporting the No Project Alternative analysis because it was reasonably expected to occur in the foreseeable future and was necessary to evaluate impacts of the No Project Alternative. Please refer to the discussion regarding the NMFS BiOp and describing the existing environment for the purposes of describing the baseline condition.

Some commenters noted that the Bay-Delta Plan's water quality objectives have not always been achieved. Nonetheless, for purposes of the No Project Alternative, it is reasonable to assume the continuation of the 2006 Bay-Delta Plan, as implemented through D-1641. Water quality objectives may not always be achieved under all hydrologic conditions, as was illustrated by compliance challenges during the recent 2012–2015 drought and the issuance of temporary urgency change petitions. However, the nature of a temporary urgency change petition is that it is temporary and urgent, and not routine. As such, these petitions are not part of the regular implementation of D-1641 and would not be appropriate to include in the No Project Alternative analysis. It is appropriate to assume that public agencies will carry out their official functions and duties and that the 2006 Bay-Delta Plan will continue to be implemented if the State Water Board did not adopt the plan amendments. State agencies are required to comply with water quality control plans adopted or approved by the State Water Board. (Wat. Code, § 13247.)⁷ The State Water Board has made clear that it expects water right holders to comply with the terms of their rights, including rights amended by D-1641, and it has the enforcement authority to compel such compliance. (See, e.g., Wat. Code, § 1831 [authorizing issuance of cease and desist orders for violations or threatened violations]; § 1055 [authorizing issuance of administrative civil liability for the diversion or use of water other than as authorized].) For example, in Order WR 2006-0006, the State Water Board issued a cease and desist order against DWR and USBR for the threatened violation of their water rights requiring implementation of the salinity objective in the interior southern Delta (State Water Board 2006). In Order WR 2010-0002, the State Water Board modified the compliance schedule in the cease and desist order, explaining that establishing or modifying a compliance schedule does not constitute a failure to fully implement the southern Delta salinity objectives (State Water Board 2010b).

The State Water Board has made it clear that it expects water right holders to comply with water right terms and conditions imposed through D-1641 to implement the 2006 Bay-Delta Plan. For example, during proceedings initiated after 2009 involving temporary urgency change petitions

⁷ Pursuant to the California Emergency Services Act (Gov. Code, § 8550 et seq.), the Governor of the State of California has the authority to waive requirements of state law, including CEQA and Water Code section 13247. During the recent severe drought, for example, Governor Brown issued several emergency proclamations and executive orders that allowed the State Water Board to consider modifying water right requirements for reservoir releases or diversion limitations that were established to implement a water quality control plan. (See, e.g., Governor's Proclamation of State of Emergency, Jan. 17, 2014.) Such modifications allowed the conservation of cold water stored in upstream reservoirs that may be needed later in the year to protect salmon and steelhead, to maintain water supply, and to improve water quality. Absent suspension of Water Code section 13247, the State Water Board could not modify water right permits and licenses in a way that does not provide for full attainment of the current Bay-Delta Plan's water quality objectives, even during a drought emergency.

filed by USBR during the recent historic drought, the State Water Board required USBR to identify how it will address compliance issues in future years until the board updates and implements the plan amendments (State Water Board 2016). Although USBR identified its continuing difficulties with meeting its responsibilities under D-1641 for implementing the San Joaquin River flow objectives, the State Water Board noted that USBR should meet all of its permit requirements before delivering any water under its own water rights (State Water Board 2017a). In response to USBR's arguments that it was not responsible for meeting the San Joaquin River flow objective after the SJRA expired and when the State Water Board has not assigned permanent responsibility for meeting the objective, the Board explained that USBR's permit requirement was unequivocal and that compliance was required (State Water Board 2017b). The mere fact that D-1641 imposed interim responsibility for meeting the objectives until the State Water Board assigned permanent responsibility is immaterial to the selection of continuation of the Bay-Delta Plan through implementation of D-1641 as the No Project Alternative. Although the allocation of responsibility was not intended to be permanent, D-1641 imposed responsibility on USBR to meet the San Joaquin River flow objective. Any permanent assignment of responsibility would have resulted in implementation of the Bay-Delta Plan. Accordingly, the State Water Board has assigned responsibility for full implementation of the Bay-Delta Plan's water quality objectives and it is reasonable to assume compliance with the plan as implemented through D-1641 for purposes of evaluating the No Project Alternative.

Assumptions and Analyses Presented by Commenters

Some commenters claimed the State Water Board "manufactured" water because of the description of the No Project Alternative. Other commenters claimed the modeling relies on water that does not exist in the system or is "taken" from the Oakdale Irrigation District/South San Joaquin Irrigation District pre-1914 water supplies on the Stanislaus River and that the modeled representation of the No Project Alternative would have relatively few impacts.

As discussed previously, the No Project Alternative described and analyzed in the SED is the continuation of the 2006 Bay-Delta Plan, as implemented through D-1641 (revised March 15, 2000). The modeling of the No Project Alternative is consistent with the existing 2006 Bay-Delta Plan and D-1641. The existing 2006 Bay-Delta Plan was adopted by the State Water Board in December 2006. Revised D-1641 was adopted by the State Water Board in March of 2000. The adoption and implementation of the Bay-Delta Plan and D-1641 establish the regulatory framework and assignment of responsibility for protecting water quality in the Bay-Delta. The modeling of the No Project Alternative is consistent with the use of the State Water Board's water quality and water right authority that it exercised in adopting the 2006 Bay-Delta Plan and D-1641. Thus, the State Water Board is not manufacturing water through its description or modeling of the No Project Alternative, but instead is evaluating conditions under existing regulatory requirements.

As discussed in Master Response 1.1, *General Comments*, the SED identifies the significant effects of the planning approval at hand, while deferring the development of detailed site-specific information to future project-specific review. In light of this programmatic analysis, the modeling assumptions are reasonably calculated to evaluate those significant impacts without allocating responsibility for the flow requirements to any particular user. As discussed in Master Response 3.2, *Surface Water Analyses and Modeling*, the model used to evaluate the environmental impacts does not assess individual water right priority or represent individual water supply transactions. Project-level impacts would be assessed in accordance with CEQA in future proceedings. The modeling associated

with the No Project Alternative is contained in Appendix D, *Evaluation of the No Project Alternative (LSJR Alternative 1 and SDWQ Alternative 1)*, and summarized in Chapter 15, *No Project Alternative (LSJR Alternative 1 and SDWQ Alternative 1)*.

WSE modeling does not allocate enforceable obligations to meet flow targets established by baseline or LSJR alternatives. The WSE model is used in the SED to describe and compare the water supply effects of the baseline and LSJR alternatives. The primary utility of a planning-level model is a comparative analysis, where the physical system is represented at a sufficient level of precision in order to accurately represent the most important effects of changes. In this case, the WSE model is configured to determine the change from baseline of water supply stored and available to meet diversion demands because of alternatives incorporating streamflow requirements. The general approach is to calculate available water for diversion in each water year based on inflows, meeting stream flow targets and net available water from storage after carryover guidelines. Modeling, modeling assumptions, comparison of modeling results, and/or significance determinations based on modeling in the SED do not constitute an exercise of State Water Board authority to impose enforceable obligations on specific entities. The State Water Board has not determined individual entities and how they will share in the responsibility for meeting the LSJR flow objectives, which in turns means that the specific water supply impacts are unknown. Appendix K, *Revised Water Quality Control Plan*, and Master Response 1.2, *Water Quality Control Planning Process*, clearly explain that the plan amendments will be implemented through future proceedings following adoption of the plan amendments. The purpose of the environmental document is to disclose environmental and other impacts, not to impose enforceable obligations to meet the flow requirements.

The State Water Board is fully disclosing the magnitude and range of impacts as if full D-1641 compliance was required absent of approval and implementation of the plan amendments. As discussed in Master Response 1.1, the State Water Board has authority to amend an existing water right on several grounds to reasonably protect beneficial uses. If there were no constraints on water supply modeling assumptions, as commenters appear to suggest, the model results presented in Appendix D and Chapter 15 would be much less in magnitude (i.e., more like baseline) and the impacts disclosed in Section 15.4, *Impacts of the No Project Alternative*, Table 15-2, *Summary of Impact Determinations for the No Project Alternative (LSJR Alternative 1 and SDWQ Alternative 1)*, would likely be fewer or lessened and may even be similar to those presented by commenters. However, potential impacts would be potentially masked under such an approach. Instead, the State Water Board made credible assumptions in its modeling and assessment of potentially significant effects as described in Appendix D, Appendix F.1, *Hydrologic and Water Quality Modeling*, and Master Response 3.2.

The No Project Alternative description does not assume continued voluntary programs and projects initiated by irrigation districts and other stakeholders in the watersheds. It does not assume this, because as disclosed previously and in Chapter 15, it would be speculative to identify the details of any agreement.

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