

DRAFT LSJRC Basin Plan Amendment Project General Guidance

Considerations for a Basin Plan Amendment

- Elements for the Staff Report
 - Beneficial Uses
 - Water Quality Objectives
 - Implementation Program
 - Monitoring and Surveillance
 - Consistency with Laws, Plans and Policies
 - Environmental Analysis (Environmental Checklist)
 - Economics

- At LEAST 2 Project Alternatives need to be presented, including a NO ACTION alternative. Multiple implementation options can be considered within each overall project alternative.

- All alternatives that were evaluated through the development process should be presented in the report, but this can be done in an appendix if the list and ranking process is extensive.

- The selection criteria for project alternatives and implementation options should be clearly stated.

- Providing very thorough scientific justification, stating all methods, assumptions, data gaps is critical.

- Economic and Environmental reviews can be done on just the highest ranking alternatives/options and presented in the main portion of the Staff Report.

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Alternatives Matrix**

Project Alternatives EC Water Quality Objective (as measured at Crow's Landing)	Technical Basis for the Water Quality Objective	Evaluation Criteria (Rating: Y=Criteria is fully met, N=Criteria is partially or not met)						
		A. Consistent with federal/state laws, plans and policies (see Attachment A)	B. Consistent with other relevant WQOs (e.g., Boron, Vernalis EC)	C. Reduced dependency on New Melones Water Quality Releases	D. Supports salt transport out of basin	E. Scientifically Defensible (protects Beneficial Uses)	F. Meets CV-SALTS Goals	G. Feasible to Implement (see Attachment B)
1. No EC Objective	Continue to regulate dischargers pursuant to the Salt and Boron TMDL	N	N	N	Y	N	N	Y
2. 1,550 µmhos/cm	Hoffman Model <ul style="list-style-type: none"> 15% leaching fraction Protection of 95% of common crop 95% yield in all of the 5% driest years 	Y	Y	Y	Y	Y	???	Y
3. Tiered Objective for Water Year Considerations - 1,350 µmhos/cm & 1,550 µmhos/cm during critical years	Hoffman Model <ul style="list-style-type: none"> 1,350 µmhos/cm - same technical basis as WQO option #5 1,550 µmhos/cm - same technical basis as WQO option #2 	Y	Y	Y	N	Y	N	N
4. Tiered Objective for Seasonal and Water Year Considerations - 1,350 µmhos/cm & 1,550 µmhos/cm (see below)	Hoffman Model <ul style="list-style-type: none"> 1,350 µmhos/cm - same technical basis as WQO option #5 1,550 µmhos/cm - same technical basis as WQO option #2 	Y	Y	Y	Y	Y	Y	???
5. 1,350 µmhos/cm	Hoffman Model <ul style="list-style-type: none"> Leaching fraction between 10 – 15% Protection of 95% of common crop 95% yield in all of the 5% driest years 	Y	Y	Y	N	Y	???	N
6. 1,010 µmhos/cm	Hoffman Model <ul style="list-style-type: none"> 10% leaching fraction Protection of 95% of common crop 95% yield in all of the 5% driest years 	N?	Y	Y	N	Y	N	N
7. 700 µmhos/cm	Ayers and Westcot	N?	Y	Y	N	Y	N	N

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Project Alternative #4**

4. Tiered EC Objectives for Seasonal and Water Year Considerations for LSJR ($\mu\text{mhos/cm}$)

Season	Water Year Type				
	Wet	Above Normal	Below Normal	Dry	Critical
Warm Season					
March – Oct	1,350	1,350	--	--	--
March - June	--	--	1,350	1,350	1,350
July - Oct	--	--	1,550	1,550	1,550
Cold Season*					
Nov - Feb	1,550	1,550	1,550	1,550	1,550

* The cold season EC water quality objective is 1,550 $\mu\text{mhos/cm}$ unless the discharger is actively participating in a Regional Board approved river management plan/agreement, which may specify an alternative compliance pathway.

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Selection Criteria for Project Alternatives

The BPA project alternatives were evaluated based on their ability to meet the following criteria:

A. Maintain consistency with applicable federal and state water quality laws, plans and policies¹

Regulations that apply to WQOs

- Federal Regulations and Guidance

- i. **(A-1)** Federal regulations require States to adopt narrative or numeric water quality criteria to protect designated beneficial uses (40 CFR §131.11(a)(1).)

§ 131.11 Criteria.

(a) Inclusion of pollutants:

(1) States must adopt those water quality criteria that protect the designated use. Such criteria must be based on sound scientific rationale and must contain sufficient parameters or constituents to protect the designated use. For waters with multiple use designations, the criteria shall support the most sensitive use.

- ii. **(A-2)** Anti-degradation Policy 40CFR §131.12

(a) The State shall develop and adopt a statewide antidegradation policy and identify the methods for implementing such policy pursuant to this subpart. The antidegradation policy and implementation methods shall, at a minimum, be consistent with the following:

(1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

(2) Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.

(3) Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

(4) In those cases where potential water quality impairment associated with a thermal discharge is involved, the antidegradation policy and implementing method shall be consistent with section 316 of the Act.

¹ Each item is cross-referenced with information that is provided within a supplemental table (A-1, A-2, etc.)

- State Regulations and Guidance

- i. **(A-3)** Water Code section 13050, subdivision (h):

(h) "Water quality objectives" means the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.

- ii. **(A-4)** Water Code section 13241

Each regional board shall establish such water quality objectives in water quality control plans as in its judgment will ensure the reasonable protection of beneficial uses and the prevention of nuisance; however, it is recognized that it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses. Factors to be considered by a regional board in establishing water quality objectives shall include, but not necessarily be limited to, all of the following:

- a) *Past, present, and probable future beneficial uses of water.*
 - b) *Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.*
 - c) *Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.*
 - d) *Economic considerations.*
 - e) *The need for developing housing within the region.*
 - f) *The need to develop and use recycled water.*

- iii. **(A-5)** Anti-degradation Policy Resolution No. 68-16

- 1. *Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.*
 - 2. *Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.*

Regulations to establish an implementation program

- 1. Federal Regulations and Guidance

- i. **(A-6)** Section 402 of the Clean Water Act requires a permitting system which USEPA addressed by promulgating 40 Code of Federal Regulations, part 122, which are the regulations pertaining to the NPDES program. The State's regulations pertaining to NPDES permits must be consistent with the federal regulations.
 - ii. **(A-7)** Title 40 Code of Federal Regulations Section 122.44(d)(1)(ii) sets forth the criteria for establishing a procedure for determining whether a discharge has a reasonable potential to cause or contribute to a violation of water quality standards.

(d) Water quality standards and State requirements: any requirements in addition to or more stringent than promulgated effluent limitations guidelines or standards under sections 301, 304, 306, 307, 318 and 405 of CWA necessary to:

(1) Achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.

(ii) When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water.

2. State Regulations and Guidance

iii. **(A-8)** Pursuant to Water Code section 13050, subdivision (j)(3), a basin plan amendment must include an implementation program to achieve water quality objectives.

(j) "Water quality control plan" consists of a designation or establishment for the waters within a specified area of all of the following:

(1) Beneficial uses to be protected.

(2) Water quality objectives.

(3) A program of implementation needed for achieving water quality objectives.

iv. **(A-9)** Water Code section 13242

The program of implementation for achieving water quality objectives shall include, but not be limited to:

a) A description of the nature of actions which are necessary to achieve the objectives, including recommendations for appropriate action by any entity, public or private.

b) A time schedule for the actions to be taken.

c) A description of surveillance to be undertaken to determine compliance with objectives.

v. **(A-10)** State Water Board Sources of Drinking Water Policy (Resolution 88-63) – monitoring

2 Surface Waters Where:

a. The water is in systems designed or modified to collect or treat municipal or industrial wastewaters, process waters, mining wastewaters, or storm water runoff, provided that the discharge from such systems is monitored to assure compliance with all relevant water quality objectives as required by the Regional Boards; or,

b. The water is in systems designed or modified for the primary purpose of conveying or holding agricultural drainage waters, provided that the discharge from such systems is monitored to assure compliance with all relevant water quality objectives as required by the Regional Boards.

vi. **(A-11)** Recycled Water Policy

Each salt and nutrient management plan shall include the following components:

(e) Implementation measures to manage salt and nutrient loading in the basin on a sustainable basis.

vii. **(A-12)** Water Code section 106.3(a):

(a) It is hereby declared to be the established policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.

B. Consistent with relevant water quality objectives (e.g., Boron, Vernalis EC objective)

C. Reduce dependency on New Melones Water Quality Releases

D. Maximize the assimilative capacity of the river to export salt out of the Basin

E. Provide scientific analysis to ensure the appropriate protection of beneficial uses

CV-SALTS Policy Direction

- Use current cropping data as an indicator of future cropping patterns, with updated analyses occurring periodically to reflect future changes.
- Protected (common) crops: protect 95% of crops (by acreage)
- Acceptable yield limitation due to applied water salinity: 95% of maximum relative yield
- Protection furnished during dry years: 95th percentile (1 in 20) dry year (low precipitation)
- Leaching fraction – 15% (or higher, particularly in dry years) for surface and sprinkler irrigated fields

F. Meets CV-SALTS Goals

- Sustain the Valley's lifestyle
- Support regional economic growth
- Retain a world-class agricultural economy
- Maintain a reliable, high-quality water supply
- Protect and enhance the environment

G. Provide a technically feasible, economically viable, and reasonable solution for the implementation of the water quality standards.

1. Technically feasible
 - a. Technologies are readily available/adaptable
 - b. Ability to meet WQOs and load allocations or WQ achieved in river
 - c. Provides for flexibility to growers, wetland operators, and POTWs
 - d. Flexible/adaptable to climate changes/water year types
2. Economically viable
 - a. Relative Capital and O&M costs
3. Implementation achievable
 - a. Potential environmental issues
 - b. Time period for planning/design/construction
 - c. Legal/regulatory/institutional hurdles
 - d. Time to implement
 - e. Action within authority of implementing agency

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Selection Criteria for Project Alternatives**

Criterion A – Consistent with Federal/State Laws, Plans, Policies

Project Alternatives EC Water Quality Objective (as measured at Crow's Landing)	Selection Criteria (Rating: Y=Criteria is fully met, N=Criteria is partially or not met)											
	Regulations Applicable to WQOs					Regulations Applicable to an Implementation Program						
	A-1 40 CFR 131.11	A-2 Anti-degradation 40 CFR 131.12	A-3 CWC Section 13050(h)	A-4 CWC Section 13241	A-5 Anti-degradation 68-16	A-6 40 CFR Part 122	A-7 40 CFR Part 122.44(d)(1)(ii)	A-8 CWC 13050 (j)(3)	A-9 CWC 13242	A-10 Sources of Drinking Water Policy (88-63)	A-11 Recycled Water Policy	A-12 CWC 106.3(a)
1. No EC Objective	N	N	N	N	N	Y	Y	Y	Y	Y	Y	Y
2. 1,550 µmhos/cm	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3. Tiered Objective for Water Year Considerations - 1,350 µmhos/cm & 1,550 µmhos/cm during critical years	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4. Tiered Objective for Seasonal and Water Year Considerations - 1,350 µmhos/cm & 1,550 µmhos/cm	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
5. 1,350 µmhos/cm	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
6. 1,010 µmhos/cm	Y	Y	N?	N?	Y	Y	Y	Y	Y	Y	Y	Y
7. 700 µmhos/cm	Y	Y	N?	N?	Y	Y	Y	Y	Y	Y	Y	Y

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Criterion G – Feasible to Implement

Project Alternatives EC Water Quality Objective (as measured at Crow's Landing)	Types of Required Actions (or Equivalent) Necessary to Meet WQOs	Selection Criteria (Rating: Y=Criteria is fully met, N=Criteria is partially or not met)		
		G-1. Technically Feasible	G-2. Economically Viable	G-3. Implementation Achievable
1. No EC Objective	No Additional Action	Y	Y	Y
2. 1,550 µmhos/cm	Planned bundle activities: <ul style="list-style-type: none"> Controlled timing of salinity discharges (RTM) 3% reduction in POTW loads 10% reduction in application of fertilizers and soil amendments No releases from Grasslands Bypass Project Planned Tailwater/tilewater recovery 	Y	Y	Y
3. Tiered Objective for Water Year Considerations - 1,350 µmhos/cm & 1,550 µmhos/cm during critical years	Same actions as WQO options #2 and #5	Y	N	N
4. Tiered Objective for Seasonal and Water Year Considerations - 1,350 µmhos/cm & 1,550 µmhos/cm	Same actions as WQO options #2 and #5	Y	???	???
5. 1,350 µmhos/cm	Same actions as WQO option #2 plus <ul style="list-style-type: none"> Maximum Management 	Y	N	N
	Same actions as WQO option #2 plus <ul style="list-style-type: none"> Storage reservoir(s) used for timed releases 	Y	N	N
6. 1,010 µmhos/cm	Same actions as WQO option #2 plus <ul style="list-style-type: none"> Regional treatment facility 	Y	N	N
7. 700 µmhos/cm	Same actions as WQO options #2 and #6 plus <ul style="list-style-type: none"> Additional actions as needed 	N	N	N