1) "Existing Quality of Water" (current water quality not "baseline" quality)

"Where the constituent in groundwater is already at or exceeding the water quality objective, the Regional Board must set limitations no higher than the objectives set forth in the Basin Plan. Exceptions to this rule may be granted where it can be shown that a higher discharge limitation is appropriate due to system mixing or removal of the constituent through percolation through the ground to the aquifer. [FN] Where compliance with the objectives cannot be achieved by reasonable efforts, review of the appropriateness of the water quality objective may be required." [SWRCB WQO #1981-0005; In re: Petition by City of Lompoc; See also SWRCB WQO #2002-0012; In re: EBMUD and Bay Area Clean Water Agencies]

Related concepts…

a) Implementation Plans for basins or sub-basins where water quality objectives are being or are threatening to be exceeded [SWRCB Res. 09-11; Recycled Water Policy, §6-b-2]
b) Estimate assimilative capacity for each basin or sub-basin [Recycled Water Policy, §6-b-3-d]
c) *"For compliance with this paragraph, the available assimilative capacity shall be calculated by comparing the mineral water quality objective with the average concentration of the basin/sub-basin over the most recent five years of data available or using a data set approved by the Executive Officer."* [Recycled Water Policy, §9-c-1 @ pg. 11]

Factors to be considered…

a) Evaluated on a pollutant-by-pollutant basis
b) Should be "representative"
c) Spatial variability (3D)
d) Temporal variability
e) Excludes the "mixing zone" where one is authorized
f) Guidance for characterizing average surface water quality is in State's 303(d) Listing Policy

Range of alternatives…

← Simpler, Cheaper, Less Flexible ---------- More Complex, Costly, Flexible →				
Presume Zero Assim. Cap.	Well x Well Assessment	2D Contouring	3D Contouring	Full Fate and Transport Model

Proposed Strawman Definition for "Existing Water Quality"…

Existing water quality is the volume-weighted average (mean) concentration of a constituent in a groundwater basin, sub-basin or other approved management zone. The average concentration will be computed using all available representative and reliable data collected from wells in or adjacent to the basin, sub-basin or management zone during the most recent 10 years but excluding data from any approved mixing zone. The 10-year average will be computed independently for each well and the resulting values used to prepare an area-wide (2D or 3D) gridded contour map to estimate concentration gradients in the basin, sub-basin or management zone. Appropriate statistical transformations may be applied where necessary to normalize the data prior to computing mean values. Where long-term data for an individual well or group of wells indicates a statistically-significant trend in water quality, it may be appropriate to weight the most recent data more heavily when computing the mean concentration at such wells. Until the volume-weighted average concentration has been computed using the above method, the Regional Board will continue to estimate existing water quality on a well-by-well basis using the most recent available data. Existing water quality should be recomputed every five years. Existing water quality for a given basin, sub-basin, management zone or well may be different values.

2) "Will Not Unreasonably Affect Present and Anticipated Beneficial Use of Water"

"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 unreasonable affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies." [SWRCB Res. 68-16; see also CWC§13241

Related concepts…

a) A pollution or nuisance will not occur [SWRCB Res. 68-16; §2]
b) Water quality objectives are being or are threatening to be exceeded [RWP; §6-b-2]

Factors to be considered…

a) *"Pollution means an alteration of the quality of the waters of the state by waste to a degree which unreasonably affects the waters for beneficial uses or the facilities which serve these beneficial uses. Pollution may include contamination."* [CWC 13050(l)]
b) *"Nuisance means anything which meets all of the following requirements: 1] Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; 2] Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal; 3] Occurs during, or as a result of, the treatment or disposal of wastes."* [CWC 13050(m)]
c) *"In determining whether available assimilative capacity will be exceeded by the project or projects, the Regional Water Board shall calculate the impacts of the project or projects over at least a ten year time frame."* [Recycled Water Policy, §9-c-1]
c) Presence or absence of an authorized "mixing zone."
d) Guidance for determining whether a surface water quality objective is being "exceeded" is in State's 303(d) listing policy. [SWRCB Res. 2004-0063]

Proposed Strawman Definitions…

Beneficial uses are "not unreasonably affected" by a discharge if the average concentration of a constituent in the receiving water is not expected to exceed the applicable water quality objective for the relevant basin, sub-basin or approved management zone for a period of 20 years following the discharge.

Beneficial uses are "not unreasonably affected" by a discharge if the discharger implements measures to ensure all downgradient groundwaters under the influence of the discharge will continue to meet applicable water quality objectives when such groundwaters are extracted for use; this may include (but is not limited to) recharging additional high quality waters in the relevant basin, sub-basin or management zone to dilute and offset the discharge, installing and maintaining well-head treatment in all affected wells, or providing additional high quality surface water supplies to protect existing or anticipated uses through blending.

Beneficial uses are "threatening to be exceeded" if the average concentration of a constituent in the relevant basin, sub-basin or management zone is greater than 50% of the applicable water quality objective and there is a statistically-significant increasing trend, over the last 20 years, that indicates the objective is likely to be exceeded in the next 20 years or the average concentration of the constituent is greater than 80% of the applicable water quality objective (regardless of any trends).

3) "Consistent with Maximum Benefit to the People of the State"

Related concepts…

a) Necessary to accommodate important economic or social development in the area in which the waters are located *(federal; 40CFR131.12-a-2)*

b) Would result in substantial and widespread economic and social impact *(federal; 40CFR131.10-g-6)*

Factors to be considered…

a) Maximum Benefit is determined on a case-by-case basis

b) Past, present and probable future beneficial uses of the water; esp. including use for water supply

c) Economic and social costs, tangible and intangible, of the proposed discharge compared to the benefits

d) Ability to pay for the necessary treatment and whether imposing such costs will result in significant adverse impact on the community (several federal tools and templates are available for surface waters)

d) Environmental aspects of the proposed discharge (esp. net effects on water quality in the region; example: preventing seawater intrusion or preserving critical habitat)

e) Implementation of feasible alternative treatment or control measures to abate social costs of lower water quality

f) Must consider "costs" to both the discharger and others affected by the discharge

g) Cost savings "alone" are not an adequate justification; must also demonstrate how the savings are necessary to accommodate important social and economic development (note reference to federal regulations in interpreting state antideg policy; presumably applies to surface waters only)

h) Reduction in water quality is spatially localized or limited (e.g. confined to the mixing zone)

i) Reduction in water quality is temporally limited and will not result in any long-term deleterious effects on water quality

j) Proposed discharge will produce only minor effects which will not result in a significant reduction of water quality (e.g. a single project uses less than 10% of available assimilative capacity or the cumulative effect of all projects uses less than 20% of available assimilative capacity in a given basin, sub-basin or management zone).

k) The proposed activity has been approved in the General Plan of a political subdivision and has been subjected to adequate environmental and economic analysis in an EIR prepared as required under CEQA.

l) EPA's Water Quality Standards Handbook (Chapter 5) provides additional guidance for evaluating socio-economic impacts related to meeting water quality standards in surface waters

Primary reference sources: 1) SWRCB's Guidance on Resolution 68-16, 1995; 2) SWRCB's Administrative Procedures Update 90-004; 3) SWRCB's Recycled Water Policy, 2009; 4) CWC §13241; 5) Asociacion de Gente Unida Por El Agua v. Central Valley Board, 210 Cal. App. 4th 1255

3) "Consistent with Maximum Benefit to the People of the State" *(continued)*

Proposed Strawman Decision Criteria for Demonstrating "Maximum Benefit to the People of the State"…

A) Lower water quality is spatially-limited and/or a temporary condition. Example: deep-well injection projects where recycled water is stored for later extraction or providing additional recharge that will ultimately blend with and offset the discharge.

B) Lowering water quality at one location will result in higher water quality in the same or another location such that there is a net improvement in water quality and beneficial use protection in the receiving water, watershed, region or state as a whole. Example: a groundwater clean-up project removes TCE, but the air stripping process increases the concentration of TDS.

C) Lowering water quality will result in more effective protection of actual beneficial uses than would occur by imposing more stringent effluent limitations or prohibiting the discharge. Example: the discharge is coupled with a project to provide well-head treatment or alternate drinking water supplies where the MUN use is severely impaired.

D) Lowering water quality would facilitate increased use of recycled water (particularly by displacing demand for potable water) and thereby increase the overall water supply in the watershed, region or state. Example: using recycled water for landscape or agricultural irrigation.

E) Lowering water quality would facilitate increased recharge and storage to groundwater basins and particularly where the underlying aquifer is in an overdraft condition.

F) Lowering water quality is necessary to accommodate important social and economic growth in the region particularly where more stringent effluent limitations or discharge prohibitions would result in widespread and substantial adverse socioeconomic impacts in the area.

G) Lowering water quality would produce less adverse environmental impact than imposing more stringent effluent limitations or discharge prohibitions. Example: additional treatment results in significant cross-media waste streams (e.g. brines, greenhouse gases, etc.) or requires significant energy consumption without any corresponding reduction in risk to public health or the environment.

H) Lowering water quality is necessary to preserve beneficial uses that may otherwise be lost if discharge flows are significantly diminished in order to comply with more stringent effluent limitations. Example: preservation of aquatic habitat or recreational resources in an ephemeral/intermittent stream.

I) Allowing lower water quality in the discharge will reduce the rate at which water quality is already degrading (or is expected to degrade) in the receiving water. Example: creating barriers to groundwater migration or diluting contaminants in the vadose zone.

J) Allowing lower water quality, in relation to the baseline condition, would actually improve existing water quality.

K) Allowing lower water quality is necessary to prevent widespread and substantial adverse social or economic impact or to accommodate important social and economic development in the nation, state or region.

L) Allowing lower water quality is necessary to protect infrastructure or industries deemed vital to national security, public safety, public health, or the environment.