CV-Salts Discussion Outline for April 5, 2012

Objective: To clarify the definition(s) for *"Point-of-Use"* and "Point-of-Compliance" with respect to assessing attainment with water quality standards in groundwaters of the state.

Current Regulatory Approach:

- All groundwaters of the state are initially presumed to be suitable for supporting MUN uses unless the Regional Board explicitly exempts an aquifer in accordance with the SWRCB's Sources of Drinking Water Policy (88-63).

- The Basin Plan establishes water quality objectives to protect groundwaters designated (or presumed to be) MUN.

- Waste discharges to groundwater are regulated to require compliance with the applicable water quality objectives at the point where effluent recharge first encounters the groundwater. The availability of assimilative capacity and the effects of mixing are not normally considered when discharge limits are established due to insufficient data and resources.

- Absent detailed monitoring data to demonstrate compliance at the groundwater interface, waste discharge requirements normally require compliance at the surface outfall. If a surface discharge meets the relevant water quality objectives at the outfall, it is presumed that the recharge water will not cause or contribute to a violation of water quality standards in the underlying groundwater.

- The current permitting approach is considered both environmentally conservative and easier to administer while preserving some flexibility to consider site-specific factors where appropriate.

- Default permit requirements may increase the cost of compliance without providing any incremental increase in actual use protection to justify the higher expense. Site-specific standards are extremely costly and rarely approved.

- The estimated cost-of-compliance, including potential legal liabilities, creates a strong incentive to seek judicial review of the water quality standards and discharge requirements further delaying any potential implementation activities.

Working Premises:

1) The foremost purpose of the Clean Water Act and California Water Code is protect the beneficial uses of water. Ideally, this could be accomplished by ensuring that water quality in each waterbody is suitable for its intended purposes.

2) For this reason, state and federal regulation tends to focus on maintaining water quality rather than on ensuring access to safe water for all citizens.[1] In addition, statutory authority is limited primarily to regulating the chemical composition of discharges by establishing water quality standards and imposing appropriate pollutant limitations to meet those standards.

3) The success of this approach depends on three assumptions:

(a) Existing pollutant levels in water supply sources are meeting all relevant standards (e.g. acceptable water quality at the designated "point-of-use" is sufficient to ensure acceptable water quality at the actual "point-of-use").

(b) That discharge limitations will ensure that pollutant levels in water supply sources continue to meet all relevant standards.

(c) State authorities have a cost-effective and efficient means to implement and enforce compliance with the aforementioned water quality standards.

4) The traditional regulatory emphasis on protecting water quality at the source (e.g. in the receiving waters) is less likely to be effective (e.g. rapid implementation of actions designed to attain standards) where:

(a) Existing pollutant concentrations in water supply sources are not meeting relevant standards as a result of past discharge practices and/or natural conditions.

(b) All on-going sources of pollution are not yet known, not yet controllable or not subject to state permitting authority or other legal controls.

(c) There is significant scientific or legal uncertainty with respect to ascertaining and assigning responsibility for meeting water quality standards in the supply sources.

(d) It is difficult to authorize early implementation of partial solutions for individual dischargers until there is sufficient evidence to demonstrate that the sum of all such efforts <u>will assure</u> attainment of the applicable water quality standard(s).

[1] United Nations Report of the Special Rapporteur on the human right to safe drinking water and sanitation. A/HRC/18/33/Add.4 (Aug. 2, 2011); pg. 4.

5) Active remediation projects will cost billions of dollars and require many decades to attain water quality standards in groundwater and cannot ensure safe drinking water supplies to all residents of California in the near term.[2]

6) Enforcement-based implementation strategies are seriously encumbered by the cost and complexity associated with meeting the legal burden-of-proof. In addition, this approach must be implemented on a case-by-case basis and often requires many years to be resolved even when successful.

7) State and federal regulators lack legal authority to prescribe the means or methods by which a discharger achieves compliance with permit limitations and, therefore, cannot compel dischargers to meet water quality standards by installing treatment systems or providing alternative water supplies at the actual "point-of-use." State and federal regulators also lack authority to enact many of the "essential" implementation elements (e.g. taxes and fees) recommended in the Harter/Lund Report. However, permitting authorities may approve such an approach, under certain circumstances, when the discharger offers such a strategy as an alternative means of demonstrating compliance.

8) Although not directly applicable to groundwater, recent EPA guidance affirms existing flexibility in the Clean Water Act (CWA) to adopt Integrated Planning Solutions (IPS) that "sequence wastewater and stormwater projects in a way that allows the highest priority environmental projects and to come first in order to address the most serious water quality problems sooner."[3] EPA's IPS initiative is intended "balance the competing priorities of the CWA" through the use of appropriate compliance schedules and innovative solutions (such as green infrastructure and pollutant trading plans). This approach is expected to be more cost-effective and lower the overall cost of compliance.

9) The "most pressing public health and welfare issue" related to water quality is the need to assure safe drinking water supplies to all persons residing in the Central Valley Region.[4 & 5] Meaningful progress toward addressing this issue will require <u>BOTH</u> of the following:

(a) In the near-term, projects that provide direct protection of drinking water quality at the actual point-of-use, while…

(b) Long-term remediation projects are implemented to improve water quality in the supply sources (e.g. receiving waters).

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[2] Harter, Thomas and Jay R. Lund. Addressing Nitrate in California's Drinking Water with a Focus on Tulare Lake Basin and Salinas Valley Groundwater. January, 2012

[3] U.S. EPA. Achieving Water Quality Through Integrated Municipal Stormwater and Wastewater Plans. Nancy Stoner, Acting Asst. Administrator for the Office of Water (OW) and Cynthia Giles, Asst. Administrator for the Office of Enforcement and Compliance Assurance (OECA). Memorandum to EPA Regional Administrators, OW & OECA Office and Division Directors. Oct. 27, 2011

[4] Op Cit, Harter & Lund; January, 2012

[5] Op Cit, U.N. Report; Aug. 2, 2011

Strawman Proposal

1) Although it is preferable, as a matter of general principle, to affect beneficial use protection in the receiving waters that serve as sources of water supply, it may not be technically or economically feasible for all waterbodies. In such instances, it is desirable to provide water treatment at any point before the actual beneficial use occurs.

2) "Designated use," "existing use," potential use," "beneficial use," are all terms-of-art that have a specific legal meaning when applied in relation to water quality regulation and almost always refer to the waterbodies serving to support these "uses." That "actual use" refers to the consumptive behavior(s) associated with these legal terms. The formal legal phrases are intended to serve as surrogate constructs designed to facilitate protection of the actual use.

3) Given the CWA's original emphasis on regulating point sources, especially municipal and industrial effluents, it was appropriate to treatment prior to discharge rather than in-situ solutions such as in-lake or in-stream mitigation strategies (aka "offsets"). However, this principle may be counter-productive when attempting to manage diffuse non-point sources and legacy contaminants.

4) Theoretically, the "point-of-compliance" and the "point-of-use" could be one in the same since the former is intended to protect the latter. However, as implemented, the "point-of-use" has been moved upstream from the location where consumption is occurring to the water supply source. And, the point-of-compliance has moved even further upstream to the discharge location or, alternatively, to the location where the effluent first encounters a receiving water. Making conservative assumptions regarding the absence of dilution/degradation or the potential proximity of water supply intakes simplifies the process of permitting discharges with limited data and analyses.

5) Some constructs, such as "first encountered groundwater," while intended to make it easier to determine if a discharge is meeting applicable standards, may be making it more difficult to distinguish true threats to water quality from more theoretical "impairments" by treating all nominal violations of water quality criteria as equivalent risks. However, the burden-of-proof should rest with those proposing to discharge waste to the environment. The availability of assimilative capacity, the potential for mixing or degradation and the proximity to actual consumptive use are critical factors that should also be considered.

6) State regulatory authorities are allowed, but not required, to use the most conservative assumptions when defining the "Point-of-Use" and "Points-of-Compliance." Permit writers authorities retain broad discretion to define both the point-of-use and point-of-compliance in any manner they see fit provided that there is adequate evidence to demonstrate that actual existing uses remain fully protected. The SWRCB has affirmed that it is possible to lower water quality without unreasonably affecting beneficial uses. But, doing so is only permissible when it would provide "maximum benefit to the People of California." *(SWRCB Resolution 68-16)*

7) The Regional Board's "broad discretion" (referenced above) to define "Points-of-Compliance" and "Points-of-Use" (including both the location and specific metrics of assessment) includes, but is not limited to, ALL of the following:

A) Existing pollutant concentrations in the receiving waters.

B) Availability of assimilative capacity in the receiving waters.

C) Spatial variation (3-dimensional) and averaging of water quality in the receiving waters.

D) Temporal variation and averaging of water quality in the receiving waters.

E) Temporal variation and averaging of pollutant concentrations in discharges.

F) Temporal variation in water quality conditions necessary to protect beneficial uses.

G) The availability of dilution.

H) Chemical transformations that may occur, over time and space, between the point-of-discharge and the point-of use.

I The need for supplemental monitoring to provide site-specific data in-lieu of making more conservative assumptions.

8) To encourage more rapid implementation of those "projects" that are expected to provide the greatest improvement where drinking water quality is most severely impaired among economically disadvantaged communities the Regional Board should use its broad discretion to incentivize stakeholders to propose innovative pollutant trading and offset programs as described in EPA's recent Integrated Planning guidance (Oct., 2011). Specifically, the Regional Board must be able to:

A) Evaluate compliance for a group of discharges collectively (aka "bubble compliance") where the dischargers have established a contractual commitment to operate in a manner that assures conformance to water quality standards.

B) Authorize dischargers to achieve compliance by participating in offset/trading programs that encourage pollutant reductions (esp. salt/nitrates) greater than or equal to the loads discharged in a manner that provides more public health benefits than if the discharge were prohibited entirely.

C) Authorize offset and trading programs across watershed boundaries where the discharge does not cause a violation to occur in the receiving water, and prohibiting the discharge would not bring an impaired waterbody back into attainment with water quality standards, and the geo-displaced offset would protect an actual use when the designated use is severely impaired.

Theoretical Illustrations

1) A discharge to groundwater occurs over a basin that has an average EC level of 2,000 uS/cm. The EC level in the discharge ranges between 1,000 -3,000 and has a volume-weighted average of 1,500 uS/cm. The net effect of the discharge actually improves average groundwater quality but average EC levels in the discharge are well above the thresholds traditionally used by the Regional Board to implement the narrative objective. The discharger is able to demonstrate that the combined flow-weighted EC levels of stormwater runoff and the effluent recharging to groundwater is approximately 900 uS/cm. Can the Regional Board write a permit condition that allows the discharge to continue by placing a "bubble" over the two sources and requiring the discharger to measure both and demonstrate compliance on a 5-year rolling average?

2) A discharge to groundwater occurs over a basin that has an average nitrate-nitrogen concentration of 35 mg/L that has been slowly trending upward for many years. The annual average nitrate-nitrogen concentration in the discharge is 40 mg/L and modeling shows that the discharge will increase the average nitrate-nitrogen concentration in the groundwater near the recharge area by 1 mg/L above the existing trend-line over the next 20 years. There is an economically-disadvantaged community downgradient of the discharger that is using the same basin as its primary water supply. Can the Regional Board issue a permit that allows the current discharge to continue provided that:

A) The discharger reduces the nitrate-nitrogen concentration in the discharge to <10mg/L, or…

B) The discharger reduces the nitrate-nitrogen concentration in the discharge to <13 mg/L and the discharger demonstrates that nitrate-nitrogen concentrations are further reduced by an additional 25% as the effluent percolates through the soil and before it reaches the water table, or…

C) The discharger agrees to begin using recycled water for crop/landscape irrigation and offers the disadvantaged community access to imported surface water as an alternate source of municipal supply, or…

D) The discharger agrees to subsidize a package treatment process for the disadvantaged community and guarantees to remove an amount of nitrate-nitrogen that is 200% greater than the mass of nitrate-nitrogen allowed in the permitted discharge.

E) What, if anything, changes in this scenario should the distressed community be located in the same basin, but UPgradient of the discharger?

3) Same scenario as #2 but there are no DAC's downgradient to the discharger? Can the Regional Board authorize an offset based on a subsidized package treatment plant for a DAC whose drinking water is severely impaired by nitrate if the DAC's supply well is not co-located in the same groundwater basin as the permitted discharge?