



August 10, 2011



Ms. Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Submitted by E-mail on 8/10/11 prior to 12:00 noon to:
commentletters@waterboards.ca.gov

Subject: Comment Letter - Water Measurement
Follow-up to 7/21/11 State Water Board Workshop re. Water Rights Measurements

Dear Ms. Townsend:

In response to the State Water Board's e-mail notification dated 8/1/11 pertaining to the new water rights measurement requirements referred to in that notice, the associated 7/21/11 Notice of Public Workshop, and the comments made by the Board and its staff at the 7/21/11 workshop, Southern California Edison (SCE) hereby submits comments pertaining to this matter in the requested PDF format.

SCE is a significant water rights stakeholder with hydroelectric and associated water conveyance and storage facilities dating back to the late 1800's that incorporate 27 Licenses, 18 Permits in Progress, 12 pending applications for water quality certifications, and 37 other pre-1914 Supplemental Statements of Water Diversion and Use.

We appreciate the accommodative spirit shown by both Board Chairman Hoppin and Board staff members at the 7/21/11 workshop to assure that these new water use measurement and reporting requirements are reasonable and serve a useful purpose, and that special considerations will be given to unique situations where measurements are problematic. As such, it appears that SCE will be able to fully comply with the new directives, so long as we are correctly interpreting the requirements as explained below.

Maximum Rate of Use

The on-line instructions for completing the annual water rights license and permit reports of water used refer to a maximum "instantaneous" rate measurement requirement. However, the actual on-line forms state only "maximum rate of diversion", without use of the term "instantaneous". Moreover, none of SCE's licenses or permits contains specific maximum rate limits, but instead contains only generalized references to rates of use. In particular, in no case is the term "instantaneous" used to define limits on the rates of use in the licenses and permits issued to SCE.

Accordingly, if it is now to become a new requirement to report maximum rates of use (which have not been previously requested since this reporting process was implemented in 1966), then

we request that they be calculated as an average over a period of time of at least one day, and not otherwise on a theoretical instantaneous basis. Indeed, in SCE licenses and permits, the rate is stated "to be used" over a period of time, which is an implicit average over some extended period of time, such as a day, 14 days (as explained below), a month, or even an entire season. In addition, the "proof-of-use" filings for water rights permits are based on a "maximum 14-day average daily use", and further there is a standard stipulation for a 14-day average contained in all of SCE's permits that states: "The equivalent of this continuous flow allowance for any 14 day period may be diverted in a shorter time, provided there be no interference with other vested rights and instream beneficial uses".

This stipulation, which includes the term "continuous", ostensibly represents a calculation covering at least 14 days (if not longer), and not a single point in time, which would be what is implied by an "instantaneous" rate. Otherwise, there is an option on the report forms for both licenses and permits to list the maximum rate of use in "gallons per day", thereby establishing that a day is the interval for measuring the rate.

In further support of using an extended period of time for reporting the maximum rate of diversion, we have on file a letter dated February 18, 1959 pertaining to Application Nos. 11115, 13778, and 16102, written from L. K. Hill, then Executive Officer of the State Water Board, on State Water Board letterhead, to J. R. Bury, then Chief Counsel of SCE, in which it is stated by Mr. Hill: "We suggest that inclusion of the phrase regarding maximum daily rate of diversion might possibly be an unnecessary limitation inasmuch as the license would recognize any rate of diversion up to the capacity of the works, so long as the average during a sustained period did not exceed the amount stated in the preceding phrase."

In any case, the basic premise in all water rights is that they are based on amounts or quantities. As such, the Application for License filing form requires only information on the "amount" or "quantity" to be diverted, with no mention whatsoever for an instantaneous rate being an additional basis for license issuance or compliance or any reporting requirement. In addition, each of SCE's permits includes the following stipulation, which unequivocally refers only to quantity of use, and not rate of use: "Pursuant to California Water code Sections 100 and 275, and the common law public trust doctrine, all rights and privileges under this license, including method of diversion, method of use, and quantity of water diverted, are subject to the continuing authority of the State Water Resources Control Board..." (emphasis added).

The American Heritage Dictionary, Merriam-Webster Dictionary, Webster's New World College Dictionary, Collaborative International Dictionary of English, and various other dictionaries all define the noun form of "amount" to be a "sum" or an "aggregate" of two or more quantities or items. Likewise, the WordNet Dictionary defines an "amount" to be "how much of something is available", a "quantity" or "sum" that is "obtained by addition", and Wikipedia defines "amount" to be "a quantity or volume" (emphasis added). As such, the concept of quantity is an ancient one that extends back to the times of Aristotle and Euclid, and even earlier, for which the fundamental principle is that quantities are additive, and by which quantities possess a particular physical structure, such as volume in acre-feet, but certainly not otherwise a rate, which is not a quantity and has no structure.

Indeed, establishing quantitative structures and the relationships between different quantities is the cornerstone of modern physical sciences by which the abstract qualities of material entities are rendered into physical quantities. As such, an "amount" is expressed by a special class of word identifiers that are intrinsically quantifiers. Even in the case of complex

unidentified amounts, the parts of an amount are indicated with respect to a measure of a mass (e.g., two kilos of sand and twenty bottles of water), a piece or part of a mass (e.g., a part, element, atom, item, article, or drop of water), or a shape of a container (a box, case, cup, bottle, vessel, or jar). Therefore, an "amount" is unequivocally a "quantity", which is a property that exists in a range of quantifiable magnitudes or multitudes, and therefore can only be a volume, not a rate.

At any rate, the maximum rate of use through SCE's hydroelectric facilities is seemingly irrelevant because there are no harmed or competing users (i.e., "no interference" per the Water Code) and no adverse impacts on the natural resources, regardless of the rate of use, because (i) the rates of use are typically contained within flowlines, tunnels, and penstocks, (ii) instream flow and reservoir aquatic species and public recreation resources are already protected by minimum flow requirements and minimum reservoir storage constraints contained within the water rights permits and licenses, as well as conditions within FERC licenses, Forest Service special use permits, and other agency licenses and permits, and (iii) there is no consumptive use of the water, all of which is eventually returned undiminished in quantity or quality to natural stream channels and/or downstream public utility water systems at the terminus of the hydroelectric facilities.

In summary, we question the validity and necessity of reporting rates of use at all. However, to the extent that a new requirement is invoked whereby such rates must now be reported, then we suggest that maximum rates of use should be based on a time step of no less than a maximum daily average, if not longer. Indeed, in response to such a suggestion by Mr. John Robles of Pacific Gas & Electric Co., posed at the podium during the public workshop on 7/21/11, Board staff concurred in open comments in front of the workshop participants that the daily average would be a sufficient and reasonable time step for reporting maximum daily use.

Apportionment of Use

Some of SCE's water right entitlements at certain locations necessitate multiple licenses and permits which, when combined, cover the maximum possible use of water at a given powerhouse, resulting for example from the sequential repowering or addition of new turbines over the years that increase the hydraulic capacity of a powerhouse. However, there is typically not enough water available to achieve maximum use in terms of volume (except in wet years with an above normal water supply), even though the maximum allowable rate of use can occur on any given day (even in dry years), and therefore, once the water use is apportioned by seniority (per instructions), there may inevitably be periods of times that extend longer than five years in which the authorized volumes in some of the licenses and permits will not be achievable.

At the same time, although all of the licenses and permits will not be needed every year to cover the *volume* of use, we will nevertheless in most cases need to use multiple licenses and permits to cover the maximum *rate* of use. This creates a potentially awkward situation whereby a license report for a given year may show no volume use but nevertheless will show an actual rate use. We trust that this paradox will be taken under consideration by the Board staff, and that such a situation would not make licenses and permits vulnerable to being revoked merely because of a highly variable inter-annual water supply.

Cost Effectiveness

As discussed at the 7/21/11 workshop, there is considerable angst and confusion as to exactly which circumstances would justify a waiver or exemption to the measurement requirements in those cases where it is not cost effective (i.e., where the installation of new measurement

devices would not be required because they were not "locally cost effective"; SB8, Chapter 2.7, Sec. 5; Calif. Water Code 5104(a)). As such, both Board Chairman Hoppin and Board staff acknowledged at the workshop that a definition of cost effectiveness is needed.

Accordingly, SCE suggests the following definitions to indicate whether or not measurements are cost effective, which would be consistent with the comment made at the workshop that these new measurement efforts should provide the "maximum social benefit at the lowest possible cost":

- (i) Where it is not technically practical or feasible to obtain accurate measurements, such as circumstances of very small volumes of water, or otherwise where it would be prohibited to build new measurement facilities, such as in areas of designated wilderness, or otherwise remote locations with no adequate road access, no power, or no security;
- (ii) Where it is not necessary or prudent because a reasonable computation can be made in lieu of the expense and trouble of building and maintaining a new gaging station, such as when one of two diverted amounts can be mathematically computed by subtracting one from a downstream measurement that contains both in order to compute the other;
- (iii) When the cost of construction and maintenance of a new gaging station or other measurement facility exceeds the benefit of the water being diverted, such as when the value of the hydroelectric energy produced from the diversion is less than the cost to measure the amount and rate of the diversion, in particular in cases where the amount of the diversion is relatively small; or
- (iv) Where, in general, the exact quantities of the diversion, in cases of small volume and/or lack of competition from other users, is negligible or insignificant to the State Water Board or the public (such as the need to inventory the water supply), and thereby reasonable estimates of the diversion would be accepted in lieu of sophisticated instrument measurements.

Note: Board staff concurred in a sideline discussion at the 7/21/11 workshop that option (iii) above would be a "reasonable" definition, among other potential definitions.

We appreciate the opportunity to provide these comments in response to the new water rights measurement requirements. If you have any questions or need additional information or explanations pertaining to these comments, I can be reached at (909) 394-8718 or at Brian.McGurty@SCE.com.

Sincerely,



Brian M. McGurty
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