



March 31, 2016

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COMMENTS: SGMA - Draft Sustainability Plan Regulations

Dear Mr. Gutierrez,

Thank you for the opportunity to comment on the Draft Sustainability Plan Regulations (Draft Regs) as these regulations will have a critical impact on local entities as they implement the Sustainable Groundwater Management Act (SGMA). The California Department of Water Resources (DWR) tireless work forming all of the various workshops that staff orchestrated or took part in to date is greatly appreciated. DWR SGMA staff's commitment and diligence in this effort has been outstanding!

The following are comments from KDWCD on various parts of the Draft Regs. I will separate these comments to three areas of interest; 1) Technical and Reporting Standards, 2) Sustainable Management Criteria, and 3) Coordination Agreements.

1) Technical and Reporting Standards (ARTICLE 3)

KDWCD technical staff were asked to review this article for clarity, reasonableness, and applicability and they provided the following comments:

ARTICLE 3. Technical and Reporting Standards

§ 352.6. Data and Reporting Standards

(a) (2)

GPS error is greater in the vertical. Several factors make 0.1' (3.048cm) accuracy unrealistic for most agencies to obtain on their own. The 0.1' standard falls between the 2cm and 5cm GPS-derived orthometric height standards established by NGS. The standard is minimally attainable with RTN-PPK. Optimal results are achieved with multiple-receiver simultaneous multiple-long-static RTN-DGPS observations.

What does "or as modified" mean?

(a) (3)

Reference point (RP) elevation and ground surface (GS) elevation are measured relative to the same vertical datum. It is inconsistent and unreasonable to allow RPs 0.5' error. Both elevations are equally weighted in calculations of surface and groundwater elevation. Allowance for larger residuals unnecessarily introduces more error to be carried forward, and results in greater uncertainty.

What does "or as modified" mean?

(a) (4)

Geospatial coordinates are typically of two types geodetic/geographic and projected.

GPS coordinates are 3D geodetic based on the WGS84 ellipsoid, and given as LON (λ), LAT (ϕ), ellipsoid height (h).

NAD83 coordinates are 2D geodetic based on the GRS80 ellipsoid, and given as LON, LAT. The orthometric height (H) component associated with NAD83 is given in terms of NAVD88. From GPS observations it is derived as $H = h - N$, where N = a locally valid GEOID height.

While similar enough to generally be considered interchangeable, WGS84 and NAD83 are derived from different 3D Cartesian reference frames, and at larger scales reveal substantial relative differences.

Geographic coordinates are global or spherical, referring to LON and LAT only.

Projected coordinates describe Earth's oblate spheroidal surface in a 2D Cartesian plane. In California these coordinates are expressed as State Plane Coordinates, given in terms of six CCS83 Zones.

A Vincenty Inverse calculation of LON along LAT36 to a precision of 5 significant figures results in an implied accuracy of 2.95811 SF.

Vincenty's Inverse applied to LAT36 - LAT37 implies accuracy of 3.64069 SF.

This results in a 4.69095 SF horizontal error displacement, only ~16% of the 30' tolerance.

30' accuracy does not comport with 5 decimal place precision.

What does "or as modified" mean?

(c) (1)

Does DWR intend to perform validation analysis? Different methodologies produce different results. By whom and by what criteria will analysis methods be determined valid and satisfactory?

(c) (2)

Too vague. Too subjective.

(c) (3)

Per Section (a) there are two datums, NAD83 and NAVD88.

(e)

Our software is purchased and licensed, not open-source. Open-source is neither sufficiently responsive nor reliable enough to perform the analysis we require and for which we purchased special extensions. Unless datasets are secured to prevent manipulation special interests may produce and publish false, agenda-driven results which contradict our reports. Who will monitor

the credentials and credibility of entities not associated with originating agencies? Who will evaluate their analyses?

(e) (1)

How can surface water flows and other hydrologic analyses of surface waters be performed without temporally relevant land surface elevation data? Why is maintenance of current land surface elevation data not mandated?

(e) (2)

Calibrated? The deliverables thus far discussed are derived from geospatially specific and temporally instantaneous field observations. Calibration requires control datasets. By whom and with what frequency will these be collected and corrected?

(e) (3)

Field measurement methods and laboratory measurement methods are inequivalent. Other methods such as remote sensing are neither equivalent. Validity determined by whom and to what standards? Chosen parameter values? The parameters are prescribed.

2) Sustainable Management Criteria (SUBARTICLE 3)

There seems to be considerable confusion as to criteria defined in the Draft Regs and I believe it is in the way staff has tried to utilize terms in SGMA and applied new terms to implement this.

§ 354.22 Introduction to Sustainability Management Criteria

Two changes might be effective in clearing up this confusion; 1) changing a few of the key terms used and replace them with terms that would be more appropriate and descriptive, and 2) modifying the introductory language to better explain the basis of the management criteria, with the new terms.

Terms:

The terms “Measurable Objectives” and “Minimum Thresholds” are intended to be two points on the same scale, but that is not clear. The term “measureable objectives” is only used twice in SGMA and on the same page. It is used in SGMA for the intent to describe that a Plan should have something more than a qualitative way to judge the condition and progress of a Subbasin in reaching sustainability. A Plan should have objectives that are measurable, is the message. Measureable objectives is misused in the Draft Regs as a defined term to be utilized in a Plan. Conversely, “minimum thresholds” is never referenced in SGMA and is instead a term in the Draft Regs.

It is suggested that these terms be change to “Minimum Threshold Level” and “Objective Level” and that both of these are points on a scale that is measureable. These new terms can be substituted throughout the document.

Introductory Language:

Modifying the introductory language, and using the new terms, could be handled in a fashion similar to the following:

“This Subarticle describes the criteria for sustainable management of a basin, including the standards by which an Agency shall set objectives to measure sustainability. Sustainability of a basin will be determined based on whether there exist any of the six undesirable results, therefore six critical parameters need to be monitored and evaluated to determine basin sustainability. Each critical parameter needs to be assigned at least one objective level and a minimum threshold level in which to avoid an undesirable result of that critical parameter.”

3) Coordination Agreements (ARTICLE 8)

§ 357.4. Intrabasin Coordination

Although there is a lot of frustration expressed with intrabasin coordination, it does seem consistent with what SGMA had in mind given the obvious similarities and groundwater connectivity within a basin. A more reasonable way to implement intrabasin coordination might be to require a Coordination Agreement Committee (or some other similar name) whenever there are multiple GSPs developed by multiple GSAs in a basin. This would be the venue where a) the coordination agreement is developed, b) a single point of contact is defined, c) all Plans are coalesced, d) a single synthesized report is produced.

This format might help with the various GSA efforts that are concerned with autonomy and losing their voice through the “single point of contact,” and so this changes the “Coordinating Agency” to the “Coordination Agreement Committee.” Through this committee the various GSAs maintain their voice and objectives at the table with a more equal footing, instead of a separate agency that handles all of this on their behalf.

Thank you, again for the opportunity to comment. Please do not hesitate to contact me if you have questions, or wish to discuss any of these items of comment.

Sincerely,

Mark Larsen
General Manager