

**Comments Received on draft Ventura County MS4 Permit  
December 27, 2006**

**From: Bill Busath, Chair  
California Stormwater Quality Association (CASQA)**

**To: RWQCB-LA**

**Date: March 7, 2007**



## California Stormwater Quality Association™

*Dedicated to the Advancement of Stormwater Quality Management, Science and Regulation*

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March 7, 2007

Dr. Xavier Swamikannu  
Storm Water Permitting  
Los Angeles Regional Water Quality Control Board  
320 4<sup>th</sup> Street, Suite 200  
Los Angeles, Ca 90013

**Subject: Draft MS4 NPDES Permit for the Ventura Countywide Stormwater Program**

Dear. Dr. Swamikannu

Thank you for this opportunity to comment on the December 27, 2006 draft of the Ventura MS4 Permit (Draft Ventura Permit). Please accept these comments regarding the Draft Ventura Permit submitted by the California Stormwater Quality Association (CASQA) on behalf of its members. CASQA is composed of public entities and individuals including cities, counties, special districts, industries, and consulting firms throughout California. Our membership represents the vast majority of the Phase 1 MS4s regulated in California. CASQA was formed in 1989 to recommend approaches for stormwater quality management to the California State Water Resources Control Board (State Water Board). CASQA continues to assist the State Water Board with the development and implementation of stormwater regulations.

Although CASQA typically refrains from commenting on individual municipal permit issues, the Draft Ventura Permit proposes for the first time development and use of municipal action levels (MALs) in the State. Therefore, our comments focus on the proposed MALs and their use as a numeric compliance metric for the technology-based standard of maximum extent practicable (MEP). Although we concur with the Regional Water Board's efforts to develop an NPDES permit that improves the permittees' accountability and ensures that water quality will be improved in a reasonable time frame, we strongly disagree with the MAL approach as currently structured and question its value for addressing water quality issues. CASQA strongly believes the MALs, as proposed, will not improve water quality (the MALs will have the net effect of directing limited public resources from the pollutants relevant to water quality in Ventura County such as legacy pesticides and bacteria, to ones identified in the MALs; e.g., nickel, cadmium, etc.) and suggests an alternative approach for your consideration. Our comments are organized into four areas: Implication of MALs, Blue Ribbon Panel Report Recommendations, Developing and Implementing MALs, and Alternative Approach for Regulating Municipal Stormwater.

***Implication of MALs***

The Draft Permit proposes to use the concept of MALs – a set of numeric metrics (largely chemical concentration measurements) to be applied at stormwater outfalls to receiving waters of

36 inches or greater beginning 3 years after the permit's adoption. The Draft Permit's findings and provisions are somewhat unclear and seem to be in conflict with each other with respect to the implications of the MALs. At one point, it is suggested that successive exceedances of the MALs "will be construed as a failure to implement adequate control measures and will be considered a violation of the MEP provisions of this Order." (Finding F.11, page 23)

However, at another point (page 29), the draft permit states that such exceedances of MALs "will create a presumption that the implementation of measures to reduce the pollutant(s) in MS4 discharges to the MEP are inadequate" and thereby require the permittee "to augment measures to reduce the discharge of pollutant(s) to not violate the MEP. (A similar subsequent reference suggests that "compliance with the MALs" means that the permittee need not go through the iterative BMP assessment, revision, and implementation process set forth under State Water Board Water Quality Order 99-05 and incorporated in to the draft Permit's Receiving Waters Limitations No. 3.)

The difference between the potential implications of the use of MALs for purposes of determining compliance with an MS4 permit's MEP provisions (which both the State Water Board and the courts recognize must be informed by technical feasibility and, at least to some extent, economic considerations) is critical. Further clarification and refinement is necessary to put MALs in proper context, and their potential use for determining the need for BMP revisions designed to assure that receiving water quality meets applicable narrative and numeric standards.

#### ***Blue Ribbon Panel Report Recommendations***

As a result of this apparent conflict, the Draft Ventura Permit may be read as proposing to use MALs as a numeric metric for assessing compliance with the technology-based MEP standard. We believe this is the first attempt in California to use numeric metrics in municipal stormwater permits to define the technology-based MEP standard. To determine whether numeric metrics were appropriate for stormwater discharges the State Water Board convened a panel of experts in September 2005 (Blue Ribbon Panel) to address the following question: "Is it technically feasible to establish numeric effluent limitations or some other quantifiable limit for inclusion in storm water permits?" The Blue Ribbon Panel's report, issued in June 2006 (BRP Report), unequivocally states the position that numeric limits for municipal stormwater discharges are not possible at this time. Specifically, the BRP Report states, in the "Municipal Recommendations" Section:

*"It is not feasible at this time to set enforceable numeric effluent criteria for municipal BMPs and in particular urban discharges....."*

*For catchments not treated by a structural or treatment BMP, setting a numeric effluent limit is basically not possible. However, the approach of setting an "upset" value, which is clearly above the normal observed variability, may be an interim approach which would allow "bad actor" catchments to receive additional attention. For the purposes of this document, we are calling this "upset" value an **Action Level** because the water quality discharge from such locations are enough of a concern that most all could agree that some action should be taken ... .." Underline added. (Page 8)*

However, the MALs proposed in the Draft Ventura Permit would be implemented as a numeric metric for defining the technology-based standard of MEP (see footnote 1, page 29), not as an upset value as described in the Panel Report. As proposed, the MALs in the Draft Ventura Permit appear to function indistinguishably from numeric effluent limits.

### ***Developing and Implementing MALs***

MALs, as proposed, are not consistent with the BRP Report, and are therefore not appropriate to define a numeric MEP standard. However, MALs could be developed consistent with the BRP Report recommendations. Our suggestions for incorporating the BRP Report recommendations into the development of MALs are discussed below:

- 1. Purpose/Application of MALs.** The derivation and use of action levels stated in the BRP Report reflects an approach to identify the “bad actor catchments” through the use of “upset values”. The BRP Report used the term “action level” as equivalent to “upset values”. However, the Regional Water Board in the Draft Ventura Permit proposes action levels as numeric compliance metrics for MEP. CASQA suggests that, instead, the Draft Ventura Permit adopt an approach, consistent with the expert BRP report, where the action level is used to trigger more aggressive efforts to investigate the cause of the elevated constituent concentrations and implement appropriate corrective actions.
- 2. Approach for Developing MALs.** The Blue Ribbon Panel provided the following approaches for developing action levels: 1) a consensus based approach; 2) a ranked percentile distribution; and 3) statistically based population parameters. The Draft Ventura Permit (Finding 11, page 23) used a “statistical based population approach” that purports to account for the central tendency of the dataset and data variability. Furthermore, the Finding states the following “The MALs were obtained by multiplying the Median (central tendency measure) with the Coefficient of Variance (estimate of variable measure)”. However, the Draft Ventura Permit did not provide a rationale for this approach and thus, it is difficult to understand how this approach supports one of the approaches offered by the BRP.

In fact, the approach proposed by the Ventura Draft Permit does not reflect the stated intent of measuring the central tendency and accounting for data variability. A review of the definition of the coefficient of variation and its relationship to a median value, and how this is implemented in setting the MAL makes this clear.

The Coefficient of Variation (CV) is a standardized measure of variability, calculated as the standard deviation divided by the mean. The median and mean are both population central tendency estimators, and are approximately equivalent for normally distributed populations. For log normally distributed data (which includes most stormwater data), the median is always less than the mean. In the Regional Water Board’s method of calculating the MAL, the central tendency estimators (mean and median) cancel out, and that the MAL is approximately equivalent to the standard deviation:

$$CV = \frac{SD}{Mean}$$

$$Mean \approx Median$$

$$MAL = Median \times CV$$

$$MAL \approx Mean \times CV$$

$$MAL \approx Mean \times \frac{SD}{Mean}$$

$$MAL \approx SD$$

...where, *CV* is the Coefficient of Variation,  
*SD* is Standard Deviation, and  
*MAL* is the Municipal Action Level.

The Regional Water Board approach actually returns the standard deviation for normally distributed data. For log normal distributed data, the MAL will be less than the standard deviation by a factor equal to the ratio of the median to the mean. This approach removes the measure of central tendency parameter from the MAL (i.e., it considers only the variability and not the magnitude of “typical” concentrations). The Regional Water Board approach is not statistically valid or consistent with the BRP report recommendations because this method results in an MAL that has no meaningful relationship to commonly observed concentrations, to any effect concentration, or to any reasonable measure of a concentration of concern. Instead, this method results in a value that may be multiples above or below any observed concentrations. This was almost certainly not the Regional Water Board’s intent in setting MALs and should be corrected.

To further demonstrate the shortcoming of this approach the MALs developed in the Draft Ventura Permit are actually more stringent than the Board’s own Basin Plan. As an example, TMDL requirements have been developed for Malibu Creek and Lagoon, and Calleguas Creek. Waste load allocations were identified and noted for a number of constituents including copper, nickel, and zinc. As recommended by federal TMDL guidance, numeric targets have been developed to ensure compliance with water quality standards and adopted into the Basin Plan as water quality objectives. A comparison of the MALs with the TMDL targets as approved in the Basin Plan is shown below in the table below.

#### Comparison of MALs v. TMDL Adopted Targets

Constituent <sup>3</sup>	Municipal Action Levels <sup>1</sup>	Basin Plan <sup>2</sup>
Copper (dissolved, ppb)	12.8	26.3-41.6
Nickel (total, ppb)	9.6	74-1292 <sup>3</sup>
Zinc (dissolved, ppb)	104	90-324

1. Attachment C to Draft Ventura Stormwater Order.
2. Attachment A to Resolution No. R4-2006-012.
3. Measured as dissolved.

**3. Appropriate Dataset for Establishing “Upset Values”.** The use of the national database (see Finding F.11) is not the preferred data to generate MALs when robust local or regional datasets are available. In establishing upset values the BRP Report suggested three data options in order of preference:

- Local urban stormwater monitoring data (the Panel notes the existence of such data sets from Los Angeles County, Orange County and other California MS4 programs)
- Combine municipal permit monitoring datasets if there is a lack of data for specific constituents in any one location
- National database.

The Panel described the advantages and disadvantages of each of these, and, given the state of the local data sets and the climatology of southern California, using a local data set would appear preferable from the panel’s perspective<sup>1</sup>.

Nor is it necessary to employ a national dataset here as California MS4s have some of the most complete and comprehensive stormwater datasets in the country. In fact, use of the national database would likely lead to inappropriately calculated MAL values. The national database, as the name implies, consists of a number of municipal monitoring programs, including programs in the nine EPA defined rain zones. One of the conclusions based on the national database is that there are differences in pollutant concentrations between rain zones. As an example, the chemical oxygen demand (COD) monitoring data for residential land use for EPA Zone 6 (which includes California) showed that zone 6 was different and higher than other rain zones. This comparison is summarized below.

**Summary of Residential COD Data by Rain Zone<sup>1</sup>**

EPA Rain Zone	Location	Average (mg/L)	Number of Observations	Std. Deviation (mg/L)
3, 7	Southeast and Northwest	44.4	102	41.9
4, 5	TX, Mid Atlantic	72.3	628	61.6
6	CA and AZ	162.1	44	100.0
Overall		74.1		69.2

1. From Figure 14, The National Stormwater Quality Database, NSQD, version 1.1, February 2004

<sup>1</sup> “Using permit specific data sets may make sense if issues of climatic variability or localized geomorphology are important....The next scale would be to combine...data sets, especially if lack of data...in any one location or region is an important issue. The largest scale would be the National Stormwater Quality Database (NSQD)...which is especially useful if small sample size limits the use of local data. One advantage of using smaller (and local), rather than larger, spatial scales is the ability to update data sets for revising Action Levels.” (pages 8-9)

As an exercise for this comment letter CASQA compiled stormwater monitoring data for three municipal stormwater programs (one northern California and two southern California) and compared these data with the national data set used by the Regional Water Board to determine if the data were statistically different. Two comparisons were provided, in one case all California data were combined and in the other case only southern California data were considered. These comparisons are summarized in our Attachment A. The results of the "t" test unpaired analysis for COD indicate a >99.9% probability that the means of the data sets are different for both cases. This conclusion is consistent with the conclusion from the national study as noted above.

A review of the plots in Attachment A demonstrates that, in general, the local dataset for southern California is different from the national dataset used by the Regional Water Board and would lead to different, and probably more appropriate, MALs. Given the potential implications of these differences, extra efforts should be made to engage various stakeholders in the consideration and development of the MALs.

### *Alternative Approach for Regulating Municipal Stormwater*

One of the primary reasons the Regional Water Board has proposed MALs to determine whether the MEP standard has been achieved is because there is increasing pressure from environmental groups to institute a more quantitative method for assessing permit compliance. CASQA can understand this pressure and has been working diligently with the State and environmental interests to address this issue. Currently CASQA is leading two efforts to address this issue.

First, we are preparing a Guidance Manual on Assessing Stormwater Program Effectiveness. This Manual is going through final review and will be available this spring. This Manual provides concrete examples of how to assess program effectiveness and the data needed to support the assessment and, it establishes a framework to integrate program implementation and water quality improvement. Furthermore, the Manual begins to establish implementation performance standards to support MEP. Permits and stormwater management plans could incorporate the concepts provided in the Manual as an alternative to the MAL compliance approach.

Second, CASQA has developed guidance for regulating stormwater discharges through our proposed *Progressive Approach*. This approach was presented to the State Water Board during the initial Sacramento workshop on the Blue Ribbon Panel report. The State Water Board members were interested in the approach and requested CASQA to make an expanded presentation at the Los Angeles workshop. We also have shared our approach with selected environmental groups; again, with relative agreement in principle that accountability is needed as well as follow up action. A graphic representation of our approach is provided in Attachment B. Embedded in our approach is the concept of quantifiable measurements that may be used to assess the progress and effectiveness of the stormwater management program. Such quantifiable measurements may take the form of the "upset values" for monitoring as well as "performance standards" for program implementation. We intend to provide more concrete examples of our thoughts regarding the use of quantifiable measurements in the April 5 workshop. In the mean time we would welcome the opportunity to meet with you to discuss how such quantifiable

measurements may be included in a municipal permit to further efforts to protect and improve water quality and provide accountability.

In closing, we concur with the Regional Water Board in that MALs can and should be part of an approach to regulating municipalities. We are working to better clarify how these MALs may be incorporated into the *Progressive Approach*. However, our fundamental difference with the approach presented in the Ventura Draft Permit is in using the values as compliance end points as opposed to instigating increased action in addressing pollutants of concern. We fully believe that was the intent of the Panel Report, prepared on behalf of the State Water Board, and their concept of "action levels".

We thank you again for the opportunity to submit these comments and to provide our thoughts in developing a more proactive and constructive stormwater management program. If you should have questions regarding our proposal or comments please feel free to contact either me or Geoff Brosseau.

Yours truly,

A handwritten signature in black ink, appearing to read "Bill O. Busath". The signature is fluid and cursive, written over a light blue horizontal line.

Bill Busath, Chair  
CASQA

Attachments

March 7, 2007

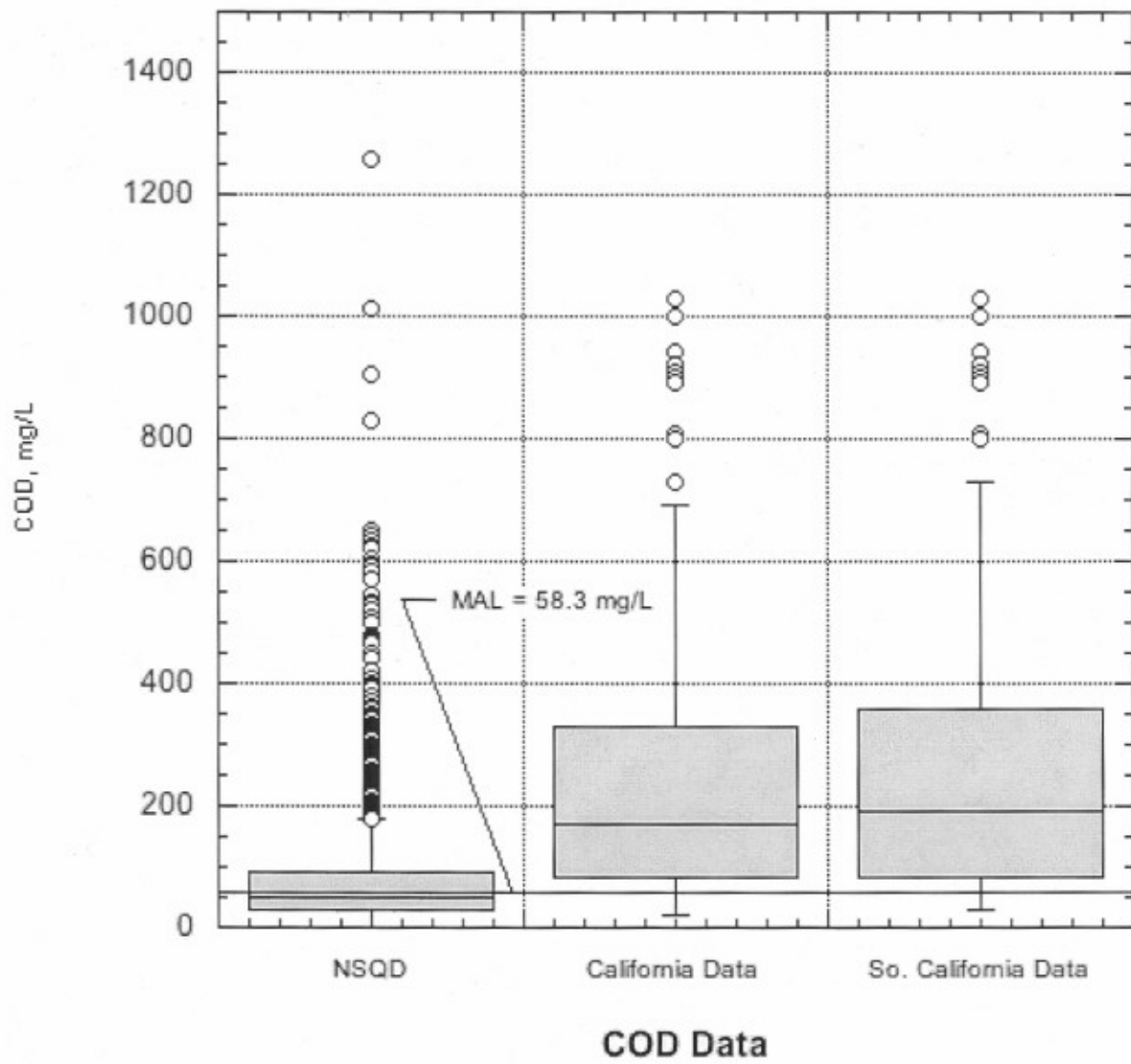


**Table 1. Student t Test for unpaired data with unequal variance – NSQD vs. CA Data**

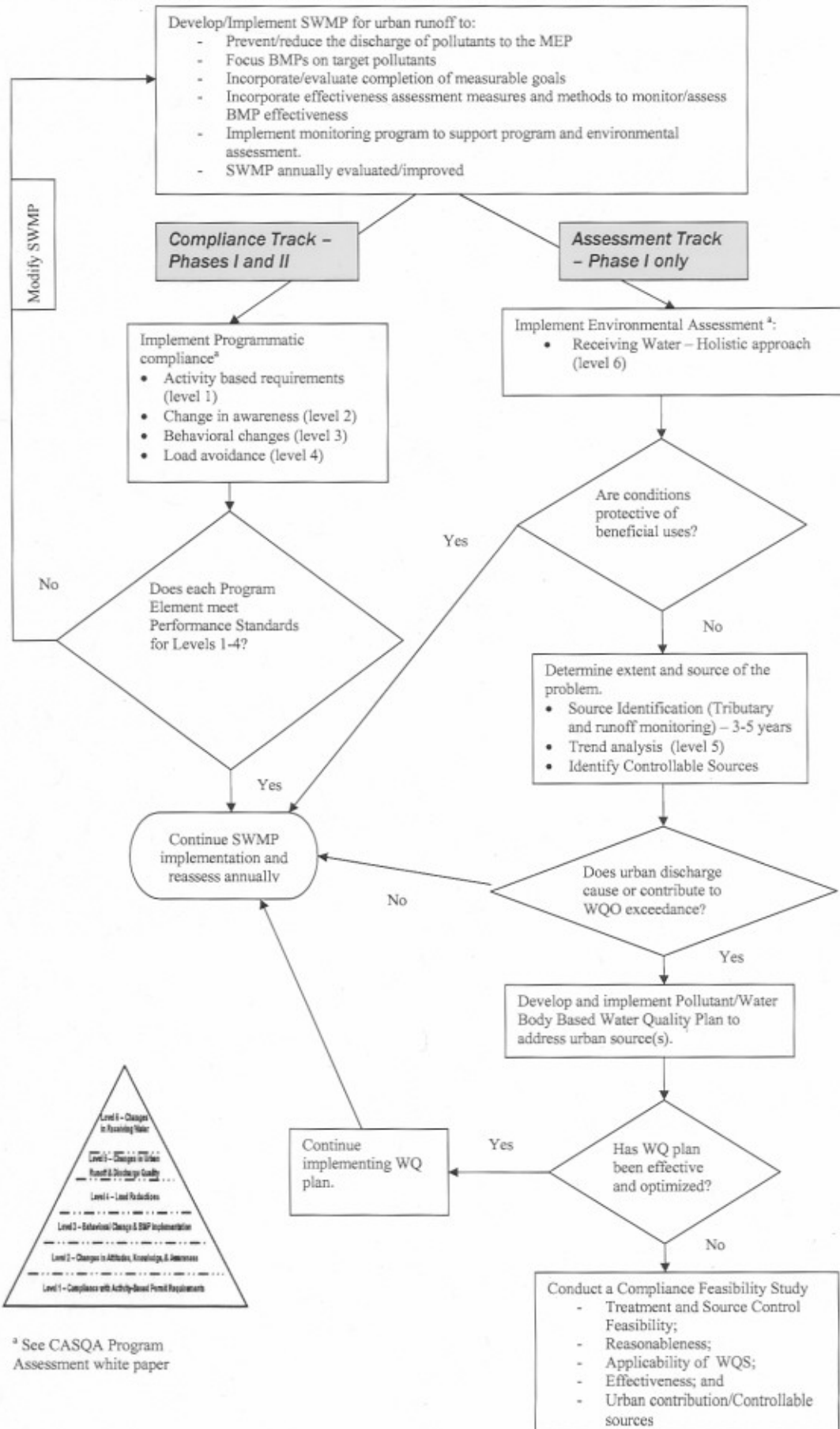
Parameter	In (NSQD)	In (CA Data)
Count	2750	177
Mean	3.91673	5.12617
Variance	0.961833	0.892794
Std. Dev.	0.980731	0.944878
Std. Err	0.0187018	0.0710213
Mean Difference	-1.20943	
Degrees of Freedom	201	
t Value	-16.468	
t Probability	< .0001	

**Table 2. Student t Test for unpaired data with unequal variance – NSQD vs. So. CA Data**

Parameter	In (NSQD)	In (So. CA Data)
Count	2750	168
Mean	3.91673	5.19002
Variance	0.961833	0.843122
Std. Dev.	0.980731	0.918217
Std. Err	0.0187018	0.070842
Mean Difference	-1.27329	
Degrees of Freedom	191	
t Value	-17.378	
t Probability	< .0001	



Municipal Stormwater Permit Strategy: Stage 2 Roadmap (9-01-06 Draft)



<sup>a</sup> See CASQA Program Assessment white paper