

September 22, 2008

Diana Messina  
Senior Engineer  
California Regional Water Quality Control Board, Central Valley Region  
11020 Sun Center Drive, Suite 200  
Rancho Cordova, CA 95670-6114

***Re: City of Live Oak Tentative Cease and Desist Order Comments***

Dear Ms. Messina,

Please accept this letter containing comments regarding the City of Live Oak Tentative Cease and Desist Order (CDO). The City has authorized ECO:LOGIC to review the CDO and provide comments on their behalf.

**Comment 1**

Page 6, Table – The City would like to propose the use of the procedure outlined in the US EPA Technical Document for Water Quality-Based Toxics Control for setting interim limits. Using 99% confidence interval and 99% probability, the ammonia interim limit is calculated to be 23.7 mg/L based on the 260 data samples collected by the City. For aluminum, the City is proposing the use of the 99% confidence interval and 95% probability with resulting interim limit of 8,300 µg/L. Use of the 95% probability is proposed due to highly unusual spikes in the aluminum concentration that were observed in the past. Use of the 99% probability will result in unreasonably high interim effluent limit. Detailed calculations for the proposed interim limits are shown below.

**Comment 2**

Page 6, Table – The Tentative order includes an interim limit for turbidity of 102 µg/L. The City believes that a typing error was made and NTU units were intended for that limit. Moreover, the City would like to request that the turbidity limit be removed from the CDO as it is not applicable to the pond plants. Turbidity effluent limits are used for filtered influent to guarantee proper disinfection and to provide pathogen free water (coliform levels of less than 2.2 MPN/100 ml). Turbidity of the pond effluent is typically not regulated by a NPDES permit. The receiving water turbidity limits to protect Reclamation District 777 – Lateral No. 1 are already included into the existing NPDES Permit Order # R5-2004-0096. The additional turbidity limit for the pond plant does not appear reasonable.

**Ammonia Interim Limit Calculations**

Step 1: Insert dataset statistics. These will be calculated elsewhere separately.

Number of samples, n =	260	
Mean =	4364.9	µg/L
Standard Deviation =	5383.7	µg/L
Maximum Concentration =	19230	µg/L
Coefficient of Variation =	1.23	

Step 2: Set the confidence level for analysis.

For guidance, Table 3-1 in the TSD uses 99% and Table 3-2 in TSD uses 95%

Confidence Level = 99 %

Step 3: Determine the percentile of the maximum observed value

Current Upper Percentile = 0.982444  
Normal distribution value = 2.107059

Step 4: Set the desired probability basis

For guidance, Table 3-1 in the TSD uses 99% and Table 3-2 in TSD uses 95%.

Desired Probability Basis = 99 %  
Normal Distribution Value = 2.326348

Step 5: Determine multiplier

$\sigma^2$  = 0.925  
 $\sigma$  = 0.962  
multiplier = 1.23

Step 6: Determine maximum concentration

**Maximum  
Concentration = 23.7 mg/L**

**Aluminum Interim Limit Calculations**

Step 1: Insert dataset statistics. These will be calculated elsewhere separately.

Number of samples, n =	26	
Mean =	434	µg/L
Standard Deviation =	810	µg/L
Maximum Concentration =	3700	µg/L
Coefficient of Variation =	1.87	

Step 2: Set the confidence level for analysis.  
For guidance, Table 3-1 in the TSD uses 99% and Table 3-2 in TSD uses 95%

Confidence Level =	99	%
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Step 3: Determine the percentile of the maximum observed value

Current Upper Percentile =	0.837678
Normal distribution value =	0.984958

Step 4: Set the desired probability basis  
For guidance, Table 3-1 in the TSD uses 99% and Table 3-2 in TSD uses 95%.

Desired Probability Basis =	95	%
Normal Distribution Value =	1.644854	

Step 5: Determine multiplier

$\sigma^2 =$	1.500
$\sigma =$	1.225
multiplier =	2.24

Step 6: Determine maximum concentration

<b>Maximum Concentration =</b>	<b>8303.1</b>	<b>µg/L</b>
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If you have any questions regarding this letter, please contact Yulya Borroum at (916)773-8100 or [borroum@ecologic-eng.com](mailto:borroum@ecologic-eng.com).

Sincerely,  
ECO:LOGIC Engineering



Yulya Borroum, P.E.

Cc: Satwant Takhar, City of Live Oak  
Mike Harrison, ECO:LOGIC Engineering