

## CV-SALTS Technical Advisory Committee Meeting

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**When:** Wednesday, August 14, 2013 from 1:00 to 3:00 PM

**Location:** Teleconference

**Conference #:** (218) 339-4600 Participant Code: 927571#



### Agenda

**1. Welcome and Introductions**

Approve action [notes from June 19, 2013](#)

**2. City of Live Oak Site-Specific Salinity Study Work Plan, [Revised Letter with Recommendations](#) for TAC Approval – Richard Meyerhoff - 5 minutes**

**3. ICM Report: Discussion of Key Findings and Technical Issues - LWA Team - 75 minutes**

**4. Phase II Conceptual Model Draft Scope of Work - Richard Meyerhoff – 30 minutes**

**5. Other CV-SALTS Project/[Contract Updates](#) – As needed Status Updates - 10 minutes**

- a) ICM / GIS Services
- b) Agricultural Zone Mapping
- c) Aquatic Life Study
- d) Tulare Lake MUN Archetype
- e) MUN POTW Archetype – Jeanne Chilcott
- f) SSALTS – Roger Reynolds

**6. Next Meeting/Call [Preliminary Date](#): September 12, 1 – 3 pm**

***One or more Central Valley Regional Water Quality Control Board members may attend.***

## CV-SALTS Technical Advisory Committee Meeting ACTION NOTES

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**Convened:** Wednesday, June 19, 2013 from 1:00 to 3:00 PM

**Participants:** Roger Reynolds(Chair), Chris Savage, Gour Choudhury, David Buchwalter, Daniel Cozad, Karen Ashby, Richard Meyerhoff, David Cehrs, Mike Johnson, Diane Barclay, Jeanne Chilcott, Rob Neenan, Sevim Onsoy, Joe DiGiorgio, David Cory, John Dickey, Tom Grovhoug, Debbie Webster

### Agenda

#### Item 1: Welcome & Introductions

- Jeanne Chilcott moved to approve, and Mike Johnson seconded and by general acclamation the Meeting Action Notes from May 17<sup>th</sup> were approved.

#### Item 2: City of Live Oak Site-Specific Study Work Plan, [Letter with Recommendations](#) for TAC Approval

- After discussion, Mike Johnson moved, and Nigel Quinn seconded, and by general acclamation the letter with recommendations was approved and will be forwarded to the Executive Committee for review and approval.

#### Item 3: Scalable Solutions to Reduce Water Use and Salinity in California Winery and Food Processing Cleaning Operations

- Dr. Gour Choudhury, from Food Science & Nutrition Department, California Polytechnic State University, presented the current Phase 1 findings to the committee. Phase 2 of the study will begin in July.

#### Item 4: Aquatic Life Study – [Draft Report](#)

- Dr. David Buchwalter presented the Draft Report to the committee.
  - Richard Meyerhoff requested written comments be forwarded to him NLT June 26<sup>th</sup>. If additional time is needed please contact Richard.

#### Item 5: GIS Task 4 Data Layers

- Sevim Onsoy, Kennedy/Jenks LWA Team, presented an update on the Task 4 work.

#### Item 5: Other CV-SALTS Project/Contract Updates

- Due to time constraints this item was not covered. Anyone with specific questions on these ongoing projects should contact Richard directly.
- A link to the [Stock Drinking Water Final Report](#) was included in the package. This report has been approved by the Executive Committee.

#### Item 4: Next Meeting/Call

- The next Technical Advisory Committee Meeting is tentatively set for July 15<sup>th</sup>, from 1-3 PM.

Lucio Orellana  
Compliance and Enforcement Section  
Central Valley Regional Water Quality Control Board  
11020 Sun Center Drive, Suite 200  
Rancho Cordova, CA 95670-6114

August 15, 2013

**CENTRAL VALLEY SALINITY ALTERNATIVES FOR LONG-TERM SUSTAINABILITY (CV-SALTS) TECHNICAL ADVISORY COMMITTEE RECOMMENDATIONS REGARDING THE CITY OF LIVE OAK'S SITE-SPECIFIC SALINITY STUDY WORKPLAN (ORDER No. R5-2011-0034)**

On May 17, 2013, the CV-SALTS Technical Advisory Committee (TAC) reviewed and discussed the Site-Specific Salinity Study Work Plan and Time Schedule submitted under Order No. R5-2011-0034, as it related to ongoing CV-SALTS evaluations to determine appropriate salinity water quality objectives to protect agricultural supply water. A summary of key discussion points and recommendations are provided below with more detail noted in Attachment 1.

- Selection of Study Area: Use of the Vicinity Basis method appears appropriate provided cropping patterns are compared with the Local Basis study area as proposed.
- Selection of Most Sensitive Crop: More detailed information on the cropping pattern for the 900-acre Vicinity Area should be provided
- Effective precipitation: Clarify basis for estimating "normal" effective precipitation
- Leaching Requirement: The factor used is extremely conservative and provides a significant margin of safety

Additional discussion revolved around the focus of the Workplan on the use of an annual average of the water quality data to evaluate compliance with a water quality objective or effluent limitation to protect irrigated agriculture. Given the seasonal nature of crop irrigation, shorter averaging periods may be appropriate. While a final policy recommendation regarding this issue will be developed by the CV-SALTS Executive Committee, TAC discussions have included monthly, 30-day rolling, and seasonal and annual averaging as potential options.

In summary, the Committee recommends that the City of Live Oak provide additional information as noted above before a determination that an EC of 1,100 umhos/cm is fully protective of the AGR beneficial use in the area potentially impacted by the City's effluent.

Sincerely,

Nigel Quinn  
Chair, CV-SALTS Technical Advisory Committee

Parry Klassen  
Chair, CV-SALTS Executive Committee

Cc: Ken Landau, Central Valley Regional Water Quality Control Board  
Jeanne Chilcott, Central Valley Regional Water Quality Control Board

**Attachment 1**  
**CV-SALTS Technical Committee Comments and Recommendations**  
**Site-Specific Salinity Study Workplan and Time Schedule**  
**City of Live Oak: Order No. R5-2011-0034**  
**Reviewed May 17, 2013**

**Background:** The City of Live Oak (City) is a small economically disadvantaged community with a population of 8,500. The annual average EC of effluent discharged from the City's new tertiary treatment plant (826 umhos/cm) exceeds the 700 umhos/cm trigger specified in their Order. Per the Order's requirements, the City submitted a workplan to evaluate salinity concentrations needed to protect agriculture irrigation supply (AGR) in areas that may be impacted by the effluent. The effluent currently flows into Reclamation District 777 Lateral Drain No. 2 prior to Lateral Drain No. 1 which in turn flows into the East Interceptor Canal and then to the Wadsworth Canal before ultimate discharge to the Sutter Bypass. Based on the initial workplan findings, the City concludes that the annual average effluent EC of 1,100 umhos/cm is protective of the AGR beneficial use and has requested that any additional work be reduced or eliminated.

Central Valley Water Board staff received the workplan on 13 March 2013 and requested input from the CV-SALTS Technical Committee on adequacy of the plan and findings.

**Workplan Summary:** As part of the workplan, the City proposed a recommended study area to represent the area that may be impacted by the effluent and evaluated permitted and actual diversions from the two laterals for agricultural irrigation, the areas' 2004 Crop Survey and the Western Fertilizing Handbook to determine cropping patterns and most salinity sensitive crop. The workplan also conducted a very preliminary "example determination of site-specific agricultural water quality objectives" using both the 40-30-20-10 (arithmetic) model and exponential model with the following inputs: a 244-day growing season, annual crop ET of 34.88 in., monthly average ET from bare soil at 0.7 in. per month; effective precipitation of 14.68 in. (assumed for normal irrigation season); leaching fractions of 0.07 and 0.10; and supply water at both 826-umhos/cm (2012 average effluent concentration) and 1,100-umhos/cm (final permit effluent limitation). The following notes the CV-SALTS Technical Committee comments/recommendation on some of the assumptions and estimates used in the workplan.

Selection of Study Area: The workplan notes three potential basis for study area selection: Vicinity; Use; and Local. The proposed area is Vicinity based (900-acres directly adjacent to the lateral drains for 1.25 miles downstream of the effluent discharge) with a cursory review of the Local area (approximately 7,780-acres of which 6,420 were surveyed as agriculture in DWR's 2004 crop survey). If the effluent was evenly distributed over the 900-acres for 6-months, it would provide approximately 10-inches.

*TAC Comment: A map of study area represented by the Vicinity Basis method is needed; however, selection of this method for delineating the study area appears to provide an adequate "worst-case" area for reviewing potential effluent impacts. The TAC concurs with the inclusion of a process that compares the cropping pattern represented by the Vicinity Basis method with the Local Based study area.*

Selection of Most Sensitive Crop: The City used the DWR's 2004 crop survey and 1995 Western Fertilizer Handbook to determine that plums (prunes) were the most salt sensitive crop grown in the area. The workplan provided a very generalized table of percentages of crop types (fruits/nuts; rice; field crops; etc.) in Table 1. Current evaluations conducted as part of the CV-SALTS AGR Zone Study are evaluating cropping patterns over a five to 10-year period and specifically identifying crops that make up 95% of the agricultural production.

*TAC Recommendation: Since selection of the most sensitive crop is the most critical element of any evaluation, more detailed information on the cropping pattern for the 900-acre Vicinity area should be provided—by specific crop percentage over at least the last five years rather than relying only on data from 2004. Current information does not clarify whether the Vicinity Basis study area is primarily orchard or whether it currently rotates cropping patterns. Some of this information may have been collected for CV-SALTS as background for the Central Valley AGR Mapping Zone study.*

Effective Precipitation: The City used mean monthly precipitation from the Marysville COOP station and estimated 25% of the rainfall as runoff, with adjustments for the non-growing season and annual crop ET and 0.7 in/mo. bare soil ET. While the methodology was clear, it was not clear whether the numbers cited are from one year, average of multiple years, or some other calculation of a “normal” rainfall year.

*TAC Recommendation: Clarify basis for estimating “normal” effective precipitation.*

Leaching Fraction: The City uses the published leaching requirement of the crop (7%) and a slight adjustment to 10% as inputs for both the arithmetic and exponential models.

*TAC Comment: Use of the leaching requirement of the crop is an extremely conservative input and likely does not represent actual water management capabilities of the local growers (unless they are using a highly managed drip or micro-sprinkler system). The City should have the option to consider identifying typical irrigation methods in the Vicinity Basis study area and determining whether the 15% leaching fraction currently being considered as a default by CV-SALTS more accurately represents anticipated practices.*

Annual Averaging: The document focuses on annual average EC concentrations.

*TAC Comment: The focus on use of an annual average of the water quality data for evaluating compliance with a water quality objective or effluent limitation likely is an artifact of the wording of the overall effluent limitation as an annual average. Protection of the AGR use is typically evaluated using monthly water quality data or 30-day rolling average concentration data (e.g. Vernalis objective in the Lower San Joaquin River). These shorter averaging periods take into account the seasonal nature of crop irrigation. The permit itself contains the following wording:*

- a) Salinity/EC Site-Specific Study.** If, after one year following construction of the tertiary Facility, the effluent EC level is greater than 700  $\mu\text{mhos/cm}$  for the annual average EC discharge, the Discharger shall complete and submit to the Central Valley Water Board a report on the results of a site-specific investigation of appropriate EC levels to protect the beneficial uses of the receiving water (i.e. AGR and MUN). For protection of the AGR beneficial use the study must consider how climate, soil chemistry, background water quality (surface water and groundwater), rainfall, and flooding affect salinity (EC) requirements necessary to protect the AGR beneficial use. The study shall include, at minimum, the following:
  - i. The most salt sensitive crops in areas irrigated with Reclamation District 777 Lateral Drain No. 1 or Lateral Drain No. 2 waters in the vicinity of the discharge under reasonable worst-case conditions.
  - ii. The sodium adsorption ratio of soils in the affected area.
  - iii. The alkalinity of soils to whether site specific conditions would reduce fluoride impacts.

- iv. The effects of rainfall and flood-induced leaching; and
- v. The background receiving water quality.

Based on these factors, as well as economic and environmental impacts (such as increased irrigation water usage, groundwater hydraulics and degraded water quality), the study shall recommend site-specific numeric values for EC that provide reasonable protection for the agricultural supply use designation in the receiving water.

*Protection of AGR may be better met utilizing a monthly, 30-day rolling or seasonal average. Selection of an appropriate averaging period for protection of the AGR beneficial use is a subject of discussion by the CV-SALTS Executive Committee. It is recommended that the project proponents monitor the ongoing CV-SALTS discussions in this area.*

## Technical Project Status Updates – as of August 7, 2013

- **ICM Project**
  - Draft report has been reviewed by the Project Committee; LWA Team currently addressing comments.
  - Final ICM Report is due Monday, August 12; highlights of the report will be discussed during the August 14 TAC meeting.
  - The Final ICM Report and Comment/Response (C/R) summary will be submitted to the Project Committee for a final review.
  
- **Conceptual Model Phase II Scope**
  - Draft scope of work based on direction provided at June Executive Committee policy meeting and subsequent discussions with stakeholders will be discussed at August 14 TAC meeting.
  
- **GIS Services**
  - Final Task 4 Report in preparation (eight new GIS data layers to expand the information available to support CV-SALTS policy decisions) after team was able to address final comments on draft report; delivery expected August 9.
  - Final report and C/R summary will be sent to Project Committee for final review.
  
- **Agricultural Zone Mapping**
  - Previously noted that Draft Report was expected to be delivered to Project Committee on July 11.
  - Project Committee review was delayed after internal review of Draft Report identified some additional issues that were best addressed prior to submittal of document to the Project Committee for review.
  - Expecting next version of the Draft Report to be delivered on August 12; assuming the identified issues have been addressed, the Draft Report will go to the Project Committee for review.
  
- **Aquatic Life Study**
  - Comments on Draft Report have been provided to Dr. Buchwalter.
  - Final Report along with C/R Summary is in preparation; expecting to receive document on or before August 23.
  - Currently planning to have Final Report on September TAC agenda for final review.
  
- **Tulare Lake Bed Archetype**
  - Tulare Lake Drainage District and its technical team are preparing a revised draft technical report.

# CV-SALTS Meeting Calendar

## 2013

**1 January**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

**2 February**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

**3 March**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

**4 April**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

**5 May**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

**6 June**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

**7 July**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

**8 August**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

**9 September**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

**10 October**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

**11 November**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

**12 December**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Notes	
2nd or 3rd Thursdays	
Dark Green Exec Comm Policy	
RWQCB Update <b><u>Bold Underline</u></b>	
2nd or 3rd Tuesdays	
Lt. Green Hatch Exec Comm Admin	
First Monday except conflicts	
Yellow Salty 5	
Lower San Jaquin River Committee	
Light Red conflicts	
<b>TAC Meeting</b>	
<b>Third Thursday Exceptions</b>	
Dark in July & December for Policy	
Nov 14 vs 21 due to Thanksgiving	
September 9th at 3:00pm SALTY 5	
December 3 State Board Presentation	