

**CV-SALTS Joint Economic and Social Cost and
Technical Advisory Committees Meeting
Thursday, October 29, 2009; 9:00 AM**

Attendees: See [Committee Roster](#) for attendance.

Economic Committee Chair David Cory called the meeting shortly after 9:00 am followed by introductions of all present in-house and on teleconference.

1. Welcome, Introductions, Circulate Roster
2. Review Approve notes from September 16th
Paragraph 3 of item 4 – wasted discharge should be waste discharge
Approval by acclamation
3. Salt/Nitrate Source Pilot Update on Progress Presentation

This is the final week that we're inputting data. We have started on the preliminary analysis with the work model and validation parts. There have been a few challenges in the data collection effort. Land cover aspect element of it, primarily how to deal with the dairy inputs. We are also developing groundwater quality data from Modesto and Tule areas.

The point of the analysis is to develop representative land cover database and forms the land inputs that will be distributed in the surface and groundwater system according to processes.

Work parameters of the land cover – urban, commercial, industrial and agricultural, irrigation, and salt loading.

Pilot areas have been based on the cover classes, land process, primarily irrigated lands, land cover, but also some urban classes and wildland classes every five years or so. We decided that during the work planning phase that would be the most expeditious way for us to characterize what we're doing with those lands.

We also decided that with all of these classifications from other users, we needed to condense those and group like classes, bases primarily on professional judgment and actual numbers, irrigation, nitrogen loading and so forth.

We replaced the wetlands classes in DWR because with NLCD and all the areas that were not mapped by DWR. That gives a little better description of what's going from the USGS, National Land Cover Database (NLCD). We merged those.

There was a little different methodology in the dairy industry. That's probably the most detailed work done. That needs to be properly represented for them to be credible to everybody. Parameters: sizing, location, lagoons, land adaptation areas, how to be developed and then all the parameters for all the classes.

Applied water parameters developed were primarily based on DWR numbers. Irrigation district inputs. Nitrogen, various sources. Extension. Publications. Recommendations. Industry practice. Salt. Most of the salt is coming from the water and that's being handled by Systech. All the irrigation supplies and water supplies, is something they're tracking...most of the salt is coming from that work with water quality, that's where we get the irrigation loading rates.

Dairy loading rates were developed with Dairy CARES and UC Extension. They were quite helpful and focused on the same goal as we are – to provide the most accurate representation of what was happening from 1997-2007. This work assumes that the nitrogen from the solids are applied at than agronomic rate which may not be accurate but that is the assumption.

This effort provides those numbers from CDFA, that data is in a very difficult format, so we're working with them to provide them in a format that's useful.

Yield nitrogen intake and uptake – Systech has to properly attribute the crop so that it grows and produces bio-mass then that nitrogen is swept away. That's based on crop yields. We're getting more data to deal with and validating them as we go the numbers are not perfect but they are the best to date.

Dairy CARES responded and the milk numbers track the herd size numbers and are probably more accurate because milk is money and they have to count every gallon. We have herd sizes for each individual dairy. We have locations for each individual dairies. Provided by Regional Board from WDRs. We were able to use this data to help us with the sizing of the dairy facilities.

All the dairies that were mapped by DWR were just the location where the facilities were. We weren't sure if those were correct. We had explicit locations from the regional board. We made sure that they were on the right catchment. We did the same thing for lagoons and land application areas.

Question about being able to incorporate better information in the data as it became available.

Response: Yes.

Specific Ions in Salt has not been tracked in land application, but will be dealt with by Systech in the WARMF model.

Ranchette data has been included in the data in various ways. The land application population is being included in the data provided to Systech. Commercial and Urban as well as the others are provided for inclusion with salt and nitrates. Same as other areas but the loadings

Septic tanks are specific to the land use type not as part of irrigation. One could get additional information on septic tanks from the counties and plot them for use. Septic tanks may or may not be significant sensitivity may be able to tell us.

Discussion of biosolids application variation is not likely critical because of the scale of work. The assumption is that they are applied at agronomic rates. They are done the same way as other fertilizers. Extension recommends farmers apply and consider mineralization of organic nitrogen.

Cat ion/Anion Assumptions will be made by Systech. They will review as they run the model. Lagoons are loaded and may vary significantly. The nitrogen and salt data are based on excretion rate rather than monitoring.

New dairies have liners that meet the 10^{-6} permeability. Older dairies are being reduced as they expand and move. Mass balance wise there is not a difference.

Discussion

Land Application areas. The result of a lot of discussion to come up with one format that is as representative as we could manage in one format for land application. This was distributed to about 75% of the available land so we had some idea of the amount of available land to gauge based on the regional board's data. About 50% of that is considered to be land constrained – that receives a high rate of nitrate application and salt application. The other 50% is not constrained applied to land at agronomic rate. Dairy felt that this was a fair representation of what was going on during the study period.

The 25% of the available land may have been constrained, but the farmers didn't use it because they didn't need to.

Groundwater data issues – Vicki Kretsinger

We did not receive much response from the 21 irrigation districts and the groundwater entities we contacted in the Tule River area. We received some information from Laurel Firestone directing us to other potential sources. We had initial communications with Environmental Health and Public Health, but then there was nothing followed through on.

We were given information on the Geotracker gamma site for the Tule River area and that turned out not to have specific coordinates or values. For the last month and a half, I have been in contact with John Borcovich, the gamma program manager about the Geotracker site and he has indicated that there have been a lot of inquiries about getting data more easily for a larger area with coordinates include the Department of Public Health wells at least in a general area. As of this week, they thought they would have an Excel document that will be workable.

For the Tule River and Modesto areas, we have tried to obtain from the individual sites DPH data. We've resorted to look at the system location and use Google Earth to assign locations in the area to calculate representative groundwater values for each location.

Regarding challenges in pumpage and recharge information we've been in communication with USGS about the use of the CVHM and we were able to get substantial support and assistance from Claudia Faunt, the program manager for the

CVHM work and we were able to ultimately assign catchment for each CVHM's grid and use those to create input files and run the post-processor. With that information we were able to develop the output we needed to provide WARMF with the municipal and agricultural pumping values as well as the recharge values.

We did find that the tail water is not handled in a manner we had hoped. Both the CVHM and IGSM models don't account for any additional use of the tail water as a water source that's applied to the land - to be incorporated with the sensitivity analysis. However, WARMF has a reuse function that does allow tailwater recycling to be accounted for.

Systech will apply in a scenario a certain amount of tailwater, will reduce correspondingly the pumpage to maintain the water balance and they will generate through the simulation water quality of that tailwater and we will be able to check that water with actual values.

Joel – Preliminary Runs and Data Validation

The objective of the simulation is to make sure that the model works when it's applied to the modeled area and that doesn't cause any problems. The quality of the groundwater pumping is coming very soon. We've been working on making sure that the supply and demand of water matches up. On the tailwater issue, balance of all the salts and nitrates right amount of water being introduced to the catchment. The demand for water is partly being met the reuse of water applied to one field and then applied again. At present, there is too much demand and too little supply because the demand accrued water is used more than once. We're making the necessary adjustments so we can make sure we're applying the right amount of new water onto land catchments. We expect the supply will be sufficient to meet the demand once we've figured out how much has been reused.

Original presenter – We're scheduled to produce a draft report at the end of November. We will have the report ready, but won't have a presentation at the next meeting.

Suggestion that we want to have a public presentation that we have a separate workshop - December 8, 9, 10 where we would present the results of the report.

Discussion ensued on the date for the workshop **Consensus on Monday, December 7th, afternoon 1-4pm.**

Dennis recommended that there be a procedure of how to integrate in the septic tank issue. Recommendation for salt amendments that are used in agriculture in the Tule sub-basin because the water is too pure.

Discussion about septic systems

Suggestion that in addition to tracking nitrate soil types also have to be factored in where these tanks are. Response: The only thing being done on soils is making sure the processes are reasonable.

Question about availability of data to the board at the feed areas to the groundwater.

Vicki: No, we had been trying to obtain that data to evaluate dairies throughout the Central Valley, and we have been able to obtain some of that for some of the counties, but that was late last week. That is not something that we have tried to incorporate into the pilot city areas. If there are data received they should be used to cross checked.

Action: December 7th, 1-4pm (tentative) for workshop on draft report

4. Coordination Programs Items
 - a. Deferred
 - b. Hoffman Report Update (Mark Gowdy)

The Division of Water Rights is re-evaluating San Joaquin river flows and southern Delta salinity objectives as part of the big delta plan. As part of that process, we have hired a consultant, Dr. Glen Hoffman to look at the latest scientific literature with regards to the salt tolerance of crops in the south delta. He prepared a draft report, which was circulated in July. There were two meetings, one on the 1st of July and the other August 13th, where he presented an outline of his draft and took questions and solicited comments from the general public. Those comments were received on Sept 14. He had some subsequent questions of some of the commenters to get additional information and is in the process of preparing for a presentation next Wednesday morning (Nov 4), at 9 A.M. to summarize the comments that were received and provide his response.

There will be a discussion of the comments, responses and then he will finalize his report by the end of November.

(Karna) Question about whether all the comments have been posted online.

Mark: Yes. Additional information Dr. Hoffman requested from the South Delta Water Agency, the San Joaquin River Group, and from DWR. That information is being scanned and will be put on the Internet as well.

Timeline is available online for the state board's update of its Bay Delta plan, the Southern Delta Affinity Group and the San Joaquin River flows.

We're working on Supplemental Environmental Document. The sequel of what we have to go through for a basin planning process. That will be circulated by the end of the year. An expensive comment period (90 days). The specific dates haven't been set up, yet. A period to respond questions and then a board conference early 2010.

We would be interested in having the CV-SALTS group or individual members submitting comments. There will be a board hearing November 2009.

Karna asked if the supplemental environmental document about the San Joaquin River flows and the potential change in the salinity objectives?

Mark answered, yes. Those are being handled together in the same document.

Karna asked about the various alternatives discussed at the last workshop, the San Joaquin River flow in particular, and unimpaired flow. Is there going to be some kind of pre-document?

Mark answered, the alternatives will probably come to daylight as part of the draft SED that comes out around the end of the year. The primary focus of our efforts in the last couple of months, have been focused more on Dr. Hoffman's work and getting information from Fish and Game and flows that would be protective of fisheries. Once we get that information we can flush out alternatives a little more. Nothing specific enough to present.

Karna asked of the state water board was going to wait until the 2.0 model is produced?

Mark answered he didn't have any specifics on the fisheries side of things. He offered to have someone get in touch with Karna about that.

Question about whether or not the group would move forward with salinity standards if the information they're waiting for didn't come in.

Mark answered that he hadn't heard about any contingencies like that being talked about with management. Focus is on moving together on the schedule with both items. Not sure how they would respond to a delay on the fisheries.

Question about how the state board and the Bay Delta Conservation needs coordinated.

Mark answered that the group was trying to coordinate as best they could. The San Joaquin River flows don't seem to be that important for the Bay District people. We're trying to coordinate most with BDCP is periodically through our review of the Bay Delta plan, which would happen after we update the San Joaquin River flow and delta salinity.

To develop a set of objectives that would be coordinated with BDCP, the group needs to know what BDCP project is. There has been an agreement between DWR and the State Board to have the environmental document for BDCP be such that we could use it for the establishment of objectives that would be coordinated with BDCP. We're on a faster time frame than BDCP.

Once the BDCP project is underway, it will be possible to change things. We're attending as many BDCP meetings as possible to make sure we coordinate with them.

Action: Bring to November meeting stakeholders' impressions, need for consensus that need to be done as a group, or individual comments sufficient

c. Response Letter Groundwater Strategy

Letter has been edited and passed around, incorporated everyone's comments. Nigel suggested more revisions. **Need to come on agreement of what we want to say.**

Feedback and comments on content and grammar of letter.

Motion to pass on to Executive Committee for blessing and signature – Bob; Seconded; All in favor

5. Salinity Mass Balance (Michael Steiger (EKI))

We are writing a paper that will be handed out when it's ready about where we got the information for the numbers.

Study objectives: Turlock sub-basin, mass balance approach, predicted some TDS trends in ground water, and then salinity management considerations /protocols and how will that affect salinity trends, conclusion.

First objective was to understand the impacts of the different sources and how they affect groundwater. Are those impacts enough to make a difference and if not, how do we change those inputs and what does that mean for the groundwater.

Overview of the concept – Any groundwater basin has primarily two inputs – the groundwater flow and recharge from land uses (groundwater outflow). We wanted to look at how the input affected the outflow. If your input is greater than your output you will have accumulation in the basin and increasing concentrations throughout the basin.

We did individual balancing for each of the technical issues related to model inputs.

We identified the municipalities and the data we had for the municipalities – water use, discharge to land, discharge to rivers. We developed a water balance for the municipalities and how they interrelated.

Salt balance – the mass is equal to the body flow from the water balance times the concentration for those streams.

We calculated water supply and seepage-to-ground water, urban landscape irrigation, groundwater concentration. Mineral dissolution – dairies and food crops. Consumptive use. Average concentration of waste water discharge. How much is going into food processors.

Salt water management strategies as an example of how the numbers can be used to develop salt water management strategies.

Side 2 or 3 includes questions about how and where the group is keeping track of the mass of the water and the concentrations.

Response: We do both water balance and a mass balance...Our point is not to develop this is what you should do. Our point is that given this message we can evaluate those things. (e.g. Reducing seepage)

Significant questions on the reduction technologies. Reduction of import helps and is significant. Reduce overall irrigation reduces the salt import. Central Valley wide, the water will come to the valley. Salts shift from one basin to another, rather than a reduction for the entire basin. Where ever the water is used, the dissolution and import salt increases.

There can be significant improvements with groundwater quality with managed reduction of salt moving across all sectors. The mass balance approach for identification of the individual salt inputs and looking at developing tools, and what are the next steps to address salinity.

Salt and water must be accounted and calculated. Increase of percolation of high quality stormwater can be helpful.

The basin is overdrafted 14,000 acre feet per year, so does that mean that we will run out of water before we salt up. But that is the average year, there are years that are 80,000 acre feet per year, or 50,000 acre feet per year under draft.

These charts are very helpful in selling this need to the political and lay persons we have to deal with.

Where are we now versus time zero? Time Zero is now. We have increased 100mg per liter in the past 200 years, mostly in the past 50 years.

6. Technical Program Goals for 2010 & Committees

Regional board is working on performance criteria – the things we need to accomplish by 2010. What should this committee and CV-SALTS accomplish by this time next year? Where would we like to be in a year from now?

Daniel suggested that the committee make sure there is enough work on some of the solution alternatives pieces that are scheduled for next year.

Suggestion that committee look at the broad question of what are we talking about in terms of salt and how do we deal with the balance issue on a valley-wide basis.

Dennis Westcot suggested that committee needs to have a brainstorming session or sessions on what steps can be taken and make them available to the studies and receive feedback on that list as the studies go forward. What are the management alternatives for the improvement of salt balance? Start putting some sensitivity on that in the next year.

Suggestion that coming up with the scope of work and being initiated the beneficial use analysis. And define what we think the science is along with the State Water Board on

salinity standards or objectives or guidelines, so that information is available to go forward.

Suggestion that there be a technical tool kit for basin planning with the Hoffman report. Suggestion that committee look at the work plan and see which projects are the higher priority what is the economics of the efforts that are proposed. Suggestion that the data collected be evaluated as to whether or not an economist can take the information and work from it.

Look at the Salt and Nutrient Plan requirements from the Recycled Water Policy to determine if there are needed tasks before that would be needed for the Basin Plan.

Suggestion that part of the management process include defining who is doing what in what basins and define the local entities that are responsible in the local area, and then they move forward with the detailed plan and CV-SALTS is more a master program.

From Dr. Howitt's prospective, are we building the data that an economist will need to be able to renew the economic analysis. Are we developing the groundwater data to help inform the economics and the assumptions made in the first groups.

Action: Committee members are encouraged to think about things for 2010 and report back to Daniel.

7. Actions/Recommendations/Report to the Executive Committee

First - Chair Cory asked Lisa Holm to described the Westside efforts:
A contract has been awarded by Reclamation to MWH to do salt source and nitrate sourcing to understand what's happening to the loads that are coming into the area and are there opportunities for us to change the timing. That will run for a year. Also looking at the Westside groundwater model and see if there are other strategic things we can do. The NW and Grasslands subarea area the region included in this project.

Approved the Groundwater Strategy response Letter to the Regional Board.

December 7th date for the workshop for draft report presentation, November 30th will be the date of the distribution of the report. And comments will be due January 15, 2010

8. Next meeting date, November 19

Suggestion that the committee invite Colorado School of mines and National Academy of Engineering to the next meeting to see if their technology can be applied to salinity management. To sulfuric acid and sodium hydroxide and calcium sulfate.

Comment about Chevron looking at growing algae in groundwater and suggestion that it be looked into.

9. Review/Discuss Draft Use/Objectives SOW (subcommittee)

Recommendation to review and seek feedback on Phase 1-5 during a conference call during the first week of November so the input can be worked into an RFP.

Suggestion that it be done Thursday, November 5, afternoon. Suggested 3:00.

Richard – suggestions to improve the scope of work of experience of ways to make these kinds of projects have a better chance of success because there are a lot of unknown in projects like this.

Phase approach is a good one. The first phase is appropriate because you are establishing the baseline – mapping, data. The work plan in second part of phase one should be a little more detailed and highlight the need for a regulatory and technical process. Phase two should be the technical process. Phase three is the regulatory process. Phase two and three should be done in parallel with each other rather than sequentially.

If this process is not done, it may result in frustration where data is collected and it's taken to the regional board and they say they need different numbers and analysis.

Suggestion that the implementation (Phase 4) be done on the sub-watershed first. Set up a pilot approach to do a few use attainability studies, a few sub-watersheds and try it out. Work it through the regulatory process.

Comment that use attainability studies only applies to surface waters.

Discussion about Santa Ana's approach as an example.

Comment that there needs to be a procedure for evaluating what groundwater quality objectives CV-SALTS protects. Need to know what is to be documented and what is the procedure for doing that. We can't present something to the board without answering the procedure question.

Daniel commented that the procedure questions that need to be answered include: why is that our policy and why we are protective of those uses.

Suggestion that the regional board be allowed to participate in the process in deciding these questions then when it comes to getting the matter approved, they've already approved it because they helped determine the rules and procedures for it.