

Salton Sea Air Quality Technical Working Group Meeting

ATTENDEES:	Pamela Vanderbilt/CH2M HILL	Carrie MacDougall/CH2M HILL
	Don Caniparoli/CH2M HILL	Reyes Romero/ICAPCD
	Sylvia Oey/ARB	Brad Poiriez/ICAPCD
	Earl Withycombe/ARB	Lee Case/USGS
	John Dickey/New Fields	Jerry Boles/DWR
	James King/DRI	Chuck Keene/DWR
	Vic Etyemezian/DRI	Monica Swartz/CVWD
	Michael Walker/Reclamation	Thang (Vic) Nguyen/DWR
	Pat Chavez/USGS	Philip Fine/SCAQMD
	Dan Cain/SSA	Ty Mull/IID
	Bill Tippets/San Diego County	Jonathan Chapman/Torres
	Water Authority	Martinez
	Jesus Ramirez/ICAPCD	

Agenda

Salton Sea Air Quality Working Group Meeting
9:30 am – 3:30 pm
October 11, 2007

CA Department of Fish and Game Conference Room
3602 Inland Empire Blvd. Suite C-220, Ontario, CA

9:30 – 9:50	Welcome and Introduction – Purpose of the Meeting and Desired Outcomes Chuck Keene/DWR
9:50-10:10	Preferred Alternative Report, Status of State Ecosystem Restoration Program, Current Efforts and Future Plans Chuck Keene/DWR
10:10-10:40	Brief Overview – The Five Year; Other Air Quality Investigations Pamela Vanderbilt/CH2M HILL, Chuck Keene/DWR (See Presentation)
10:40-11:05	Summary of DRI Air Quality Research to Date at the Salton Sea, Additional Needs and Recommendations Vic Etyemezian/DRI (See Presentation)

- 11:05-11:30 Summary of USGS Air Quality Research to Date at the Salton Sea, Additional Needs and Recommendations
Pat Chavez/USGS
(See Presentation)
- 11:30-11:55 Agency Comments, Proposed Studies, Additional Needs and Recommendations
ICAPCD, SCAQMD, Torres Martinez, ARB, EPA
- 1:15-2:15 Air Quality Monitoring Network - Plan Development and Implementation
Don Caniparoli/CH2M HILL. Reyes Romero and Brad Poiriez/ICAPCD
(See Presentation)
- 2:15-2:45 Additional Comments from Air Quality Agencies
ICAPCD, SCAQMD, Torres Martinez, ARB, EPA
- 2:45-3:15 Schedule Update and Discussion of Potential Phasing of Studies and Air Quality Research at Salton Sea
Chuck Keene/DWR
- 3:15-3:30 Path Forward, Next Steps
- 3:30 Adjourn

Minutes

Chuck Keene, California Department of Water Resources (DWR), opened the meeting with self introductions by the attendees. Chuck then informed the group that Sylvia Oey and Earl Withycombe of the California Air Resources Board (ARB) had agreed to serve with him as Co-Chairs of the Salton Sea Air Quality Technical Working Group (SSAQTWG).

Chuck explained that the first priority of the group is to bring together technical experts in air quality (AQ) to work on developing plans and studies to support AQ assessments for the Salton Sea Ecosystem Restoration Program. The meetings will be open to the public, but only approved technical experts may be funded for travel expenses. Approved attendees that need reimbursement for travel were asked to speak with Jerry Boles, DWR.

Pamela Vanderbilt, Don Caniparoli and other CH2M HILL personal will serve as technical support staff to DWR and the SSAQTWG as the restoration program moves forward over the next few years.

Pamela asked the ICAPCD when their new CEQA Guidelines would become effective and Brad Poiriez (ICAPCD) responded that they planned to take Rule 310 to their Board on November 6, 2007. The CEQA guidelines would become effective immediately upon Board approval, but the Rule would take effect in January 2008.

One goal of the SSAQTWG is to prepare an Air Quality Monitoring Plan to support the Salton Sea Ecosystem Restoration Program.

Ground Rules for the SSAQTWG:

1. Meet every 6-8 weeks.
2. Members – Provide technical input
3. Members keep up with homework assigned between meetings. Meeting preparatory materials will be distributed 10 days in advance of meetings for review and comment.
4. Group is to focus on technical issues, not policy considerations.

Chuck provided a brief summary of how the Salton Sea Ecosystem Restoration Program got to this point, and where it is going:

- In October 2006, the California Resources Agency released the Salton Sea Ecosystem Restoration Program Draft Programmatic Environmental Impact Report (DPEIR) for public review and comment.
- Based on input from the Salton Sea Advisory Committee, in May 2007, Secretary for Resources Mike Chrisman provided the Legislature with the Salton Sea Ecosystem Restoration Program Preferred Alternative Report and Funding Plan.
- Comments from the public were responded to in the Final PEIR, released in June 2007.
- Subsequently, SB 187 (Senator Ducheny) was proposed that addressed funding procedures and use of \$47 million earmarked for Salton Sea as part of Proposition 84. In August 2007, SB 187 was placed in the Assembly Appropriations Committee's suspense file. It will be extended to a two-year bill and heard again next year. One of the issues to be resolved is identification of a permanent governance entity to take over the restoration program. Absent a decision on governance, Secretary Chrisman will remain in charge of continuing Salton Sea work, while the legislature and stakeholders develop a permanent entity to oversee the 75 year project. The California Department of Fish and Game (F&G) would continue to oversee the Salton Sea Restoration Fund.

DWR is proposing implementation of the 75-year Ecosystem Restoration Program in 4 phases:

- 1) Preconstruction Phase, also known as the 5 Year Plan
- 2) Major Construction
- 3) Construction Completion
- 4) Operations and Maintenance

The initial Preconstruction Phase, or 5 Year Plan, includes (among other things a priority for a more thorough assessment of baseline air quality conditions at the Salton Sea. This will involve ambient air quality and meteorological monitoring at and near the Salton Sea to supplement the existing air quality monitoring network. The development of baseline data will allow comparisons and evaluation of changes in conditions in the future, and will help evaluate how the monitored changes may, or may not, be associated with the Ecosystem Restoration Program. At some level, air quality and meteorological monitoring would be expected to continue during the entire 75-year Ecosystem Restoration Program. Other studies will also be implemented to study air quality conditions, potential impacts, and possible mitigation measures as part of the 5 Year Plan.

Although SB 187 was not acted upon last fiscal year, the Governor included \$13.3 million in the FY 2007/2008 budget for continuing Salton Sea Restoration work. In addition, some funds under Proposition 50 remain for Salton Sea-related work. The money has not yet been divided or assigned to specific projects, but the consensus is that background air quality monitoring is a priority to get started as soon as possible.

What has been done so far:

- 1) Re-constituted the DWR and DFG in-house team, with assistance from USGS
- 2) Extended the contract with CH2M HILL
- 3) In the process of convening meetings of technical working groups
 - Air Quality
 - Hydrology
 - Geology/Engineering
 - Biological
 - Socioeconomic
 - Data Analysis & Management Group, headed by Kristina White (DFG); tasked with compiling data and making it available to the broader group
- 4) Started developing a long-term AQ monitoring plan and identifying specific studies that may be needed
- 5) Planning for development of RFPs for special studies to allow DWR to go out to bid, e.g., projects with universities to study microclimate, salt deposition, etc.

The southern half of the Salton Sea is recognized as having some of the best characteristics for wildlife, e.g., siting of habitat complexes. Sediment analysis and bathymetry work will be proceeding soon over the entire area that may be exposed in the future. Monica Swartz recommended hyperspectral analysis of the Salton Sea, and the suggested sharing of information between all agencies for greatest restoration effectiveness.

This group will need to identify air quality studies and monitoring programs that need to be done or started in the next 5 years – what should go into the 5 year plan?

Overall, the goal is to develop a coordinated science program, in cooperation with DFG and USGS. The Science Program will include a systematic Monitoring and Assessment Plan to guide future management actions. We will also need to identify infrastructure needs to support further investigations, e.g., equipment, laboratories, docks, boat storage areas, etc.

A detailed Monitoring and Assessment Plan (MAP) is being developed for each of the resource categories (technical workgroups) listed above. The MAP will provide integration between the multi-media monitoring programs. The Air Quality Monitoring Program will focus on three main objectives:

- 1) Defining baseline conditions within the Salton Sea air basin
- 2) Measuring future changes that could occur from Management Actions
- 3) Addressing the need for additional focused studies (e.g., nitrate deposition) based on monitoring data.

Focused Studies may be contracted out or performed in house.

Monitoring and assessment programs are an iterative process predicated on the use of best available information and science. They are likely to be expensive, complicated, and time-sensitive.

Administrative Notes:

By the end of October, we will e-mail a meeting summary to the SSAQTWG, and post pdf files of the PowerPoint presentations on a new Salton Sea web site that should be available soon. Please forward your input on the handout "Integrated Approach to Monitoring" table to Chuck and Pamela by end of October. The final Version of the DRI salt chemistry study from the February 2007 sampling program should also be available by the end of October.

Pat Chavez, USGS, suggested that we need to look at modeling parameters and frequency of measurements and recorded data. For example, hourly average wind data is not nearly as useful as wind speeds measured every 2 minutes if you are trying to evaluate dust episodes. However, you should only record this data if wind speeds exceed a certain level. Peak hourly values don't give a true indication of the nature and extent of wind gusts, which may form and disperse dust on the desert. Carrie MacDougall, CH2M HILL, mentioned that wind gusts pick up the dust and sustained winds blow it. Pat also discussed the various types of PM10 data collected by the ARB stations - 6 day filter data vs. hourly BAM data. He also indicated a need for collecting both PM2.5 and PM10 data, if PM2.5 is a problem in the area.

According to Jonathan Chapman, Torres Martinez Indians, there is a PM10 BAM station in operation on the Torres Martinez tribal lands.

Pat Chavez reported that some of the most active playa for dust generation that he has seen include Mesquite Playa, Gypsum mine areas, and Franklin Lake wet playa. One concern may be gypsum from the San Felipe Creek area.

Monica Swartz, CVWD, suggested that wind farmers in Coachella Valley have a lot of wind data - it may be proprietary, but useful.

Don Caniparoli, CH2M HILL, gave a presentation on development of a air quality monitoring network for the Salton Sea - See presentation.

INPUT on OBJECTIVES SLIDE

Philip Fine, SCAQMD, stated that we may be talking about an additional 6 to 10 monitoring stations, depending on the proposed uses for the data, e.g., receptor modeling. We need to get into the details of the monitoring, (what, how often, where).

The group discussed what questions or hypotheses we are trying to answer. The question was asked, "Are we hypothesis driven or investigation driven?"

Reyes Romero, ICAPCD, asked if there was a scientific procedure to deciding how many monitoring stations to install and where to place them (e.g., siting criteria). Phil suggested we look at wind flow patterns, and perhaps use an iterative process, starting with fewer stations, and adding more stations, measurements, and equipment later, especially as project elements are defined and located.

Sylvia Oey suggested that Earl might give a presentation at our next meeting on what objectives for monitoring may be in different situations. Monitoring objectives may vary depending on the reason for the monitoring, and the proposed use of the data, for example:

- 1) Planning: developing air quality plans, establishing control strategies, and evaluating control measure effectiveness
- 2) Source Apportionment or Impact Assessment: evaluating impacts on air quality or compliance with ambient air quality standards.
- 3) Modeling: development of air quality and meteorological data to support dispersion modeling or health risk assessment (human or eco receptors)

Chuck reiterated that we have a priority to develop information to adequately define baseline or background conditions, and to fill data gaps. The best approach may be to try to define "adequate" coverage now, and expand the program over time to answer specific questions or needs.

The group discussed the budget available for ambient air quality and meteorological monitoring. There are some limitations on the available budget, and we will need to make investments at the proper times, as legislative approvals are obtained. There will likely need to be incremental improvements over the next 10 years or more, as the restoration program becomes better understood. Improvements will also be needed because equipment and methods continue to evolve.

Staged Approach

- 1) Fill data gaps - establish baseline or background air quality and meteorological conditions
- 2) Define what additional information will be needed once a project(s) has been defined, and refine the monitoring system to collect that information. For example, project level studies will likely need to include dispersion modeling to evaluate the air quality impacts of construction and operation and maintenance of program elements and infrastructure.

Detailed information on meteorology may be needed to decide where to site the stations, but it is not clear we will have that kind of data until we have the stations to collect it. A look at geographic gaps is not enough. The group needs to think about where emissions may originate (sources) and where they may impact air quality. We also need to consider impacts on sensitive receptors, near field impacts, and regional impacts, depending on the source(s) and the pollutants of concern.

The group discussed the previous work to co-locate 2-meter and 10-meter meteorological towers at 3 CIMIS stations. Data needs to be gathered that has been developed to date to see if correlations can be established between the two types of data. Correlations may allow us to make better sense of and better use of the extensive amount of existing 2-meter meteorological data. One obvious option for expanding coverage would be to expand

capabilities at more of the existing CIMIS stations.

Pat Chavez talked about where we might expect to see exposure of the sea bed. He suggested the following to support future modeling:

- 1) wind sensors around the sea
- 2) wind and PM10 downwind monitors

Monica Swartz again mentioned the use of hyperspectral, high resolution imagery. John Dickey mentioned use of GIS and Remote Sensing service at Owens Lake, including LANDSAT high resolution imagery. John pointed out that we may also need to consider monitoring of sand motion, as this is one of the primary indicators of emissions generation potential at Owens Lake. There is a need to correlate sand motion with emissions. We may want to look at identifying the source of emissions by chemical analyses of salts and fingerprinting of various playa types.

Other types of monitoring and studies we may want to consider:

- Plume Monitoring – review of satellite imagery, by anecdotal experience and visual observations
- Direct measurement of emissions
- Modeling of emissions
- Sand motion/playa conditions
- Control of dust emissions. Where are controls going to be needed – how to apply them?
- Groundwater conditions, surface conditions
- Soils – physical, chemical analyses
- Playa surfaces – morphology can be mapped over time

Monitoring data could be used to identify emission sources and to perform source assessment, as well as for monitoring changes that may be associated with the restoration program. Philip Fine suggested that one cheap method for establishing where dust is going, and potentially where it is coming from, would be to lay out deposition plates and analyze collected materials by microscopic XRD.

There is a high priority need to establish current baseline air quality conditions for the Salton Sea. Some questions that need to be answered include:

- What is contributing to the current air quality conditions within the Salton Sea Air Basin?
- What trends may we expect over time, with or without a restoration program?

It may take 5 years or more to get enough “background” data to adequately define baseline conditions, so it is important to get started. If data starts showing higher pollutant concentrations, focused monitoring and modeling may help us answer our questions, if done properly.

Sylvia Oey again tried to summarize the 3 or 4 objectives of an air quality monitoring plan for the Salton Sea:

1) **Establish background or baseline air quality conditions** to allow comparisons of project-related impacts.

2) **Source apportionment, impact assessment** - Emissions associated with the lake as a source. The Salton Sea Restoration Program may actually be a source within a source, because of all the other things happening in the Salton Sea Air Basin.

3) **Mitigation Demonstration** - monitoring to demonstrate efficiency of mitigation strategies.

4) **Modeling** - pilot studies to help validate air quality models.

The Air Quality Monitoring Plan must be flexible and include a framework for integrating future phases and needs.

Philip Fine pointed out that if we hope to use salt types as an indicator of source locations, we need to conduct PM speciation, even at the beginning, to establish baseline or background conditions.

Chuck suggested that he hoped to have a baseline Air Quality Monitoring Plan established by Spring 2008. By Year 4 or 5 of the 5-Year Plan, the State hopes to be completing the project level environmental documentation (EIS/EIR) for the Preferred Alternative.

Our goal is to design a baseline, Phase 1 air quality and meteorological monitoring program at the Salton Sea. Questions include:

1. What information do we need to have in order to do this?
2. What are the ideal conditions for siting a station?
3. What work needs to be done before we site facilities?
4. What existing air quality monitoring and meteorological data do we have?
5. What are the reasons for incomplete data at existing locations and can this be remedied?
6. How much will it cost to do this first phase, baseline monitoring and what is the available State funding for this effort?

A suggestion was offered to try identifying the best sites now, and adjust later, if need be.

Sylvia Oey reminded us to consider the potential for toxics in fugitive dust and exposed or disturbed playa or lakebed sediments.

Monica Swartz brought up the issue of potential cyano-bacterial toxins or other biotic emissions or wind born toxins. She asked: What's in the sea now? How is it changing?

We discussed development of an Air Quality Monitoring Plan Matrix to show:

- Objectives
- Parameters
- Phasing
- Regulation-based monitoring vs. other special studies

Philip Fine suggested that we may want to consider proactive selection of monitoring equipment, even if it is not currently EPA's standard equipment, because of the long-term

nature of this study, and the potential for expensive monitoring equipment to not meet current standards in the future. For example, EPA is currently looking at equipment that can conduct concurrent sampling of PM10 and PM2.5, which might be a very good idea for this study.

Lee Case suggested we look at monitoring considerations and prioritize what we do first.

Pat Chavez and Vic Etymezian discussed the potential use of a "Poor Man's" Dust Sensor to identify where to put monitoring stations, and Monica Swartz described the programs conducted by the Center for Embedded Network Sensors. The area of study may extend from the perimeter of Salton Sea to the rest of the air basin.

Sylvia Oey volunteered to create a sub-group represented by ARB, SCAQMD, and ICAPCD, to get together to take a first cut at identification of some key issues:

- baseline monitoring and data needs
- metrological station distribution: how many, where

Mike Walker, USBR, asked that she also look at confidence levels, and the minimum and maximum number of stations that might be needed.

This sub-group would discuss their findings to the larger technical group recognizing the need for consensus from all the stakeholders – ARB, TM, ICAPCD, SCAQMD, IID (landowners), USGS, USBR, SSA, etc. Later, work on what is needed to monitor changes and how much of that is needed in association with the restoration program.

UC Riverside is operating a nitrogen deposition monitoring network in Joshua Tree.

CH2M HILL will develop a better map of the existing stations and lists of what they monitor.

Vic Etymezian pointed out the usefulness of wind profiles vs. wind speed, and suggested anemometers at 2m, 6m, 8m, and 10m, if possible.

The group further discussed Sylvia Oey's proposal of a subgroup, asking how long it would take. Sylvia suggested that the subgroup provide a report at the next group meeting, including a "strawman" plan for a baseline/background monitoring study for group review and comment. Eventually the plan would be sufficiently developed to allow peer review and public release. Earl Whitycombe will serve as the ARB representative to the DFG Data Management Group. The group agreed that experience with management and use of air quality data was critical. Quality Assurance is typically the responsibility of the people conducting the monitoring.

ICAPCD – Brad Poirez indicated Imperial County is considering a separate planning area for the Salton Sea. The Owens Dry Lake is a separate planning area called the Owens Valley Planning Area.

We discussed plans for our next meeting, in early December, to occur at Owens Lake, hosted by Ted Schade, the Air Pollution Control Officer for Great Basin Unified Air Pollution Control District, John Dickey suggested we meet at the new LADWP facility near Keeler, CA. LADWP is the owner/operator of the facilities on the dry lake bed, and would be happy to assist. One way to get to Owens Lake is to fly to Burbank, and drive to Lone Pine/Keeler. It takes approximately 3 hours, so we need to leave time for travel.

Suggestions for topics to be discussed at our next technical meeting, to follow our tour of Owens Lake:

- General criteria for siting of air quality and meteorological monitoring stations
- What type of stations
- Constituents to be monitored, in 1st Phase, 2nd Phase, etc.