

Air Quality Update

March 16, 2005

Objectives - Agency Collaboration,
Draft PEIR, and Compliance with
Legislation and Regulations

- ⌘ **Maximum Feasible
Attainment of
Legislated Objective:
“Elimination of air
quality impacts from
the restoration
projects”**
- ⌘ **General Conformity
Demonstration**
- ⌘ **Best Available Control
Measures (BACM),
Local Regulations**



Why the Salton Sea will not become another Owens Lake...

⌘ *Prohibited by:*

⊠ *The enabling legislation for the Ecosystem Restoration Plan (ERP).*

⊠ *The Clean Air Act and associated Federal, State, and local programs.*

⌘ *The State of California is treating Salton Sea as if it **could** become another Owens Lake to ensure that it **will not**. This requires:*

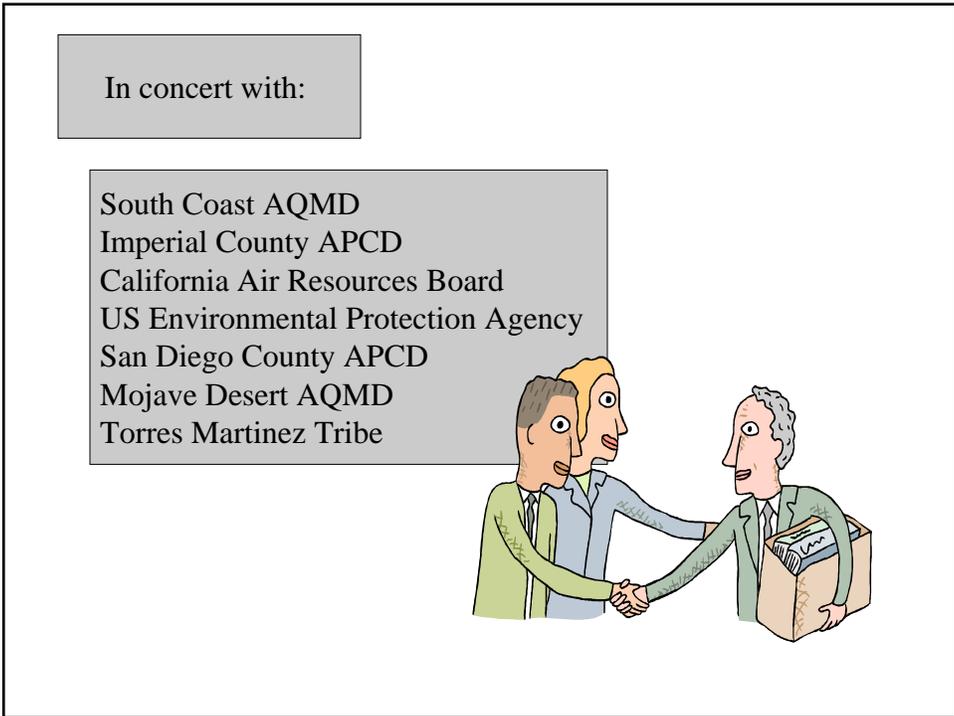
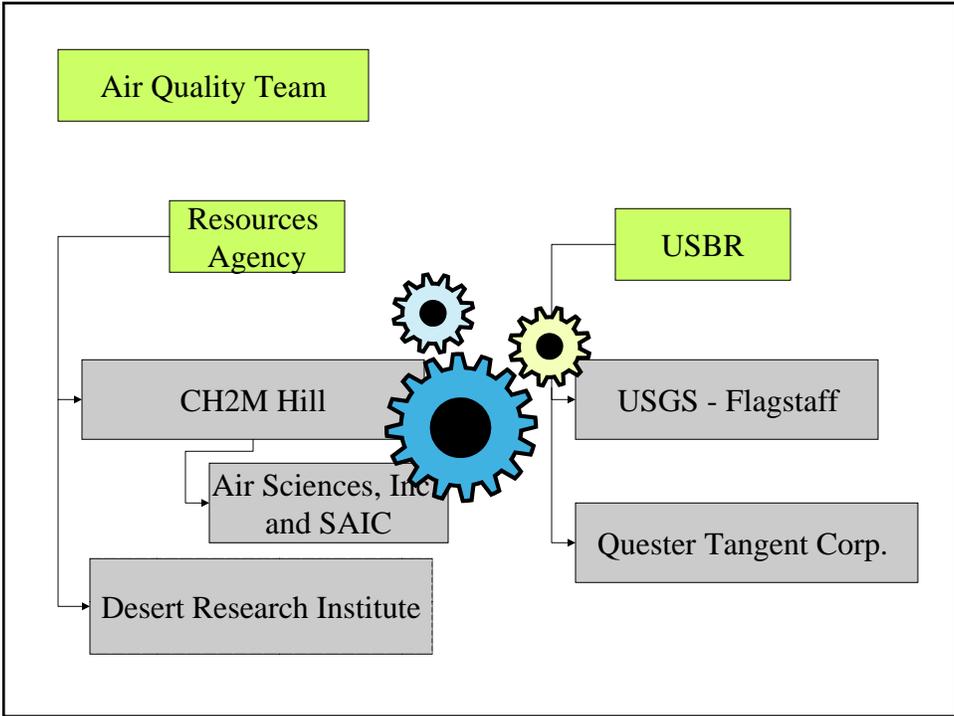
⊠ *Coordination with agencies responsible for air quality*

⊠ *Up-front assessment of the potential emissions*

⊠ *Building needed dust control into alternatives*

Work Plan Steps

- ☑ Coordinate with agencies
- ☑ Establish AQ baseline *Aug 27, 2004 Draft*
- ☑ Analyze impacts of met conditions on air quality
- ☑ Determine data gaps *Final Tech Memos – Feb 2005*
- ☑ Identify potential sources under alternatives
- ☑ Identify applicable significance criteria
- ☑ Identify emissions estimation tools
- ☐ Develop screening criteria for alternatives
- ☐ Develop impact analysis methodology
- ☐ Identify best approaches to meet AQ goals
- Evaluate impacts of screened alternatives
- Develop mitigation and quantify benefits



Outline of Air Quality Presentation

⌘ **Work to date**

- Background
- Work plan coordination with agencies
- Data gaps
- Emissions sources, significance criteria, tools
- Soil/sediment emissivity assessment models

⌘ **Data collection and management**

- USGS/USBR studies
 - Acoustic survey of Sea floor
 - Wind and air quality correlations
- Wind tunnel testing (DRI)

Establish Air Quality Baseline (Existing Setting)

⌘ **Draft air quality baseline assessment (August 27, 2004)**

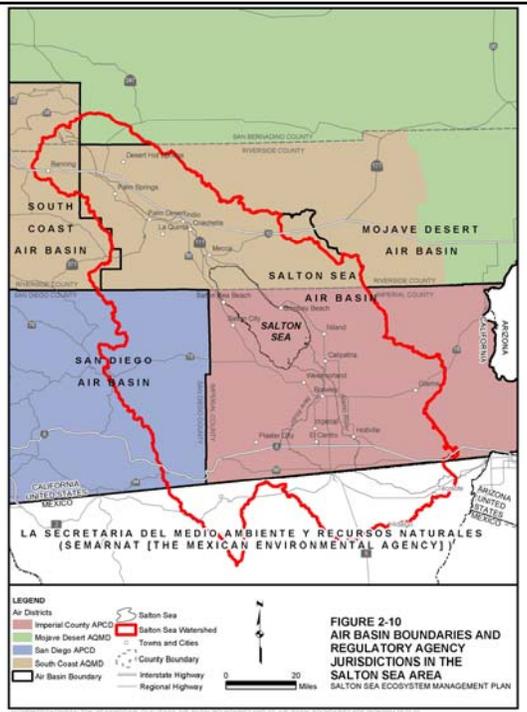
⌘ **Draft identified data gaps, others exist**

- Gaps to be addressed in subsequent work plan steps

⌘ **Goal:**

- Air quality baseline assessment will be refined and supplemented as the steps in work plan proceed
- Best available information to be included in the Existing Setting section of the Draft PEIR

Air Basin Boundaries and Agency Jurisdictions



Available Data, Gaps, and Data Collection

Do we have enough data to support the PEIR?

- ⌘ **Data gaps related to aerometric data**
- ⌘ **Data gaps related to sources and emissions inventories**
- ⌘ **Other data gaps**
- ⌘ **Recommendations**

Data Collection

⌘ **Data gaps may fall into two types:**

- ☒ **Data gaps specific to development of alternatives, criteria for screening of alternatives, or impact analysis (short term needs)**
- ☒ **Data gaps related to adaptive management planning or indications that changes in proposed or implemented approaches may need to be evaluated (longer term needs)**

Determine Data Gaps

⌘ **One area of data gaps of particular interest: **air monitoring****

- ☒ **Determine adequacy of existing air monitoring data, in particular, PM10 & PM2.5**
- ☒ **DWR will work with USBR/USGS and AQ agencies to review the existing data and determine what additional data are needed for use in future impact and mitigation analyses**

Existing Ambient Air Quality Monitoring and Meteorological Data



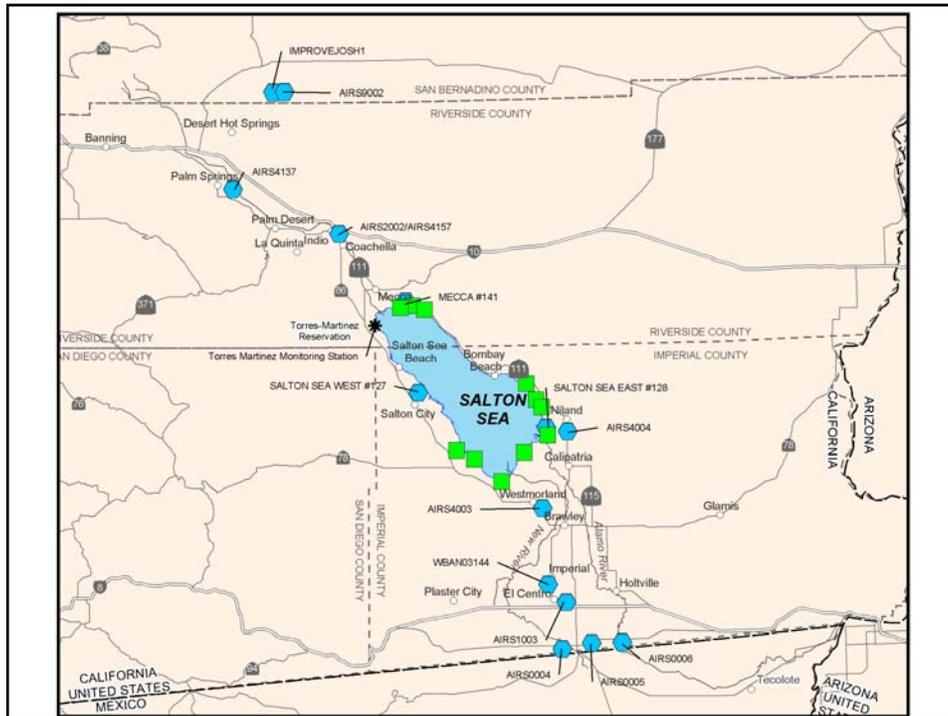
⌘ **31 stations identified, list growing**

- Meteorological data
- Monitoring of criteria pollutant concentrations in ambient air
- Monitoring of hazardous air pollutant (“air toxics”) concentrations in ambient air

Data Gaps

⌘ **Recommendations**

- Additional 10-meter wind data
- Recommended locations
 - add to three existing CIMIS stations (short term)
 - add three new stations (or more) (long term)
- Establish PM10 monitoring locations
 - focus on exposed playa areas



Potential Emission Sources and Pollutants

- | | |
|--|---------------------------|
| ⌘ Boats and Personal Water Craft | ⌘ <i>PM₁₀</i> |
| ⌘ Construction - Equipment | ⌘ <i>PM_{2.5}</i> |
| ⌘ Construction - Fugitive Dust | ⌘ <i>CO</i> |
| ⌘ Farming - Dust | ⌘ <i>NO_x</i> |
| ⌘ Farming - Engines | ⌘ <i>SO_x</i> |
| ⌘ Farming - Pesticides, Herbicides, and Fertilizers | ⌘ <i>VOCs</i> |
| ⌘ Mobile Sources - Exhaust/Tire Wear | ⌘ <i>HAPs</i> |
| ⌘ Mobile Sources - Road Dust | |
| ⌘ Off Road Vehicles - Exhaust | |
| ⌘ Salton Sea - Volatilization of Compounds | |
| ⌘ Wind Blown Fugitive Dust | |

Portions of the Salton Sea Watershed With Air Concentrations that Exceed National (N) and California (C) Ambient Air Quality Standards (NAAQS and CAAQS)

County (or Portion of)	Carbon Monoxide	Fine Particulate Matter (PM10)	Fine Particulate Matter (PM2.5)	Ozone
Imperial	C	N and C		N and C
Riverside (Coachella Valley)		N and C		N and C
San Bernardino		N and C	N and C	N and C
San Diego		C	N and C	N and C

N = Ambient air concentrations exceed the National Ambient Air Quality Standards
 C = Ambient air concentrations exceed the California Ambient Air Quality Standards
 Source: California Air Resources Board, Area Designations, www.arb.ca.gov

Significance Criteria

- ⌘ **SCAQMD – New Source Review (NSR), CEQA, and General Conformity**
- ⌘ **ICAPCD - NSR and General Conformity**
- ⌘ **MDAQMD - General Conformity**
- ⌘ **SDAPCD - NSR and General Conformity**

Emissions Estimation Tools/Models

⌘ **Offroad Model**

- Boats and Personal Water Craft
- Construction – Equipment (URBEMIS)
- Farming - Engines
- Off Road Vehicles - Exhaust

⌘ **ARB Emission Factors**

- Construction - Fugitive Dust (URBEMIS)
- Farming - Dust
- Farming - Pesticides
- Mobile Sources - Road Dust

Emissions Estimation (continued)

⌘ **Direct Testing of Emission Factors**

- Odors

⌘ **Ideal Gas Law**

- Salton Sea - Volatilization of Compounds

⌘ **AP-42**

- Farming - Pesticides
- Mobile Sources - Paved Road Dust

⌘ **SPECIATE**

- HAPs

Agency Approved Dispersion Models

- ⌘ **ISC3**
- ⌘ **AERMOD**
- ⌘ **CAL3QHC**
- ⌘ **CALPUFF**

If modeling is required, protocol will be developed in collaboration with agencies

Wind Blown Fugitive Dust

- ⌘ There is *no one definitive model*; two distinct, independent methods will be used to complement long-term monitoring
- ⌘ Macro-scale versus Micro-scale models vary greatly
- ⌘ To compare alternatives, one method should be used for all fugitive dust sources
- ⌘ Effectiveness of air quality management measures may be estimated based on literature, monitoring data, and/or models

Soil/Sediment (Playa) Emissivity Assessment Approach

⌘ Framework considers dominant factors first

- ☒ **Land Use**
- ☒ **Climatic Factors (wind, temperature, humidity)**
- ☒ **Land Surface Conditions (crust, armoring, texture)**
- ☒ **Predicting Emissions: Combine two distinct modeling approaches**

Land Use Factors

- ☒ **Wildlife refuge, wetlands habitat, upland habitat**
- ☒ **Geothermal development**
- ☒ **Infrastructure**
- ☒ **Brine storage and reuse, inundated areas**
- ☒ **Undeveloped playa areas**
 - ☒ *With controlled access*
 - ☒ *Without controlled access*
- ☒ **Air quality management (vegetative cover, wetting, etc.)**

Salt Cemented Crusts Affect Emissivity

- ⌘ **Salts flow in water from surrounding watershed and concentrate in terminal salt lakes**
- ⌘ **As water evaporates, salts form a saline playa (a mixture of salt and sediments)**
- ⌘ **Salt cemented surface crusts are the main surface factor limiting emissions from dry, exposed playa**
- ⌘ **Salt cemented crusts can become soft during cool, moist weather, setting the stage for elevated emissions**
- ⌘ **Evaluating salt crust dynamics at Salton Sea is part of the playa emissivity assessment**



Emissivity Models

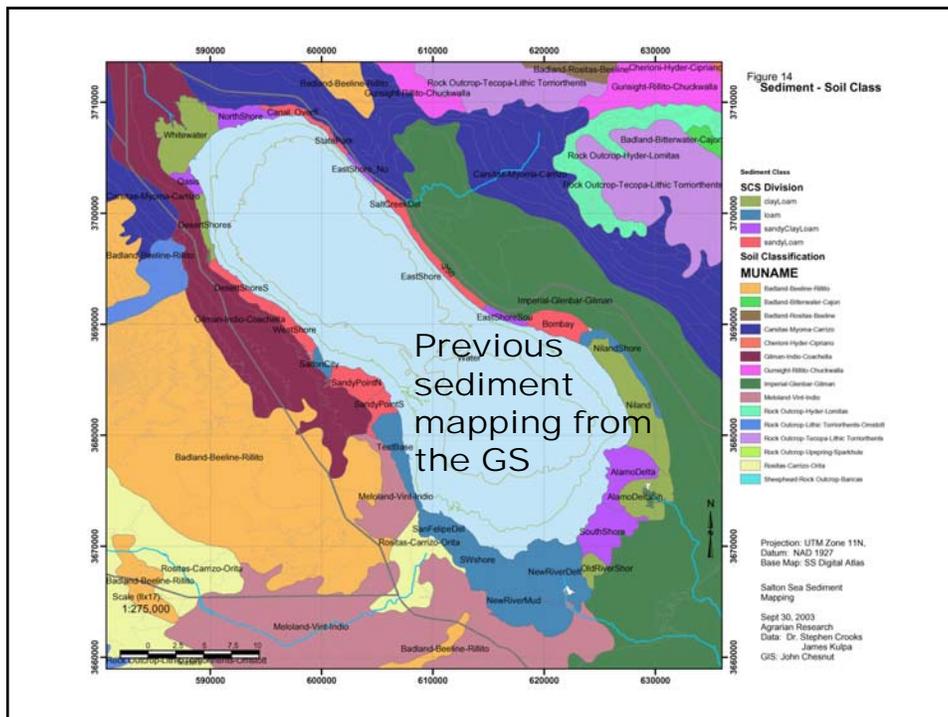
- ⌘ **“Owens Lake” approach**
- ⌘ **MacDougall Method**
- ⌘ **WEPS**

GS/BR Acoustic Survey of Salton Sea Floor -- Status

- ⌘ **Survey completed**
- ⌘ **Bathymetry results available**
- ⌘ **Sediment textural profile results April 1**

Other Key Data

- ⌘ **Soil survey, previous sediment surveys**
- ⌘ **Sediment sampling and analysis**
- ⌘ **Alternatives descriptions (exposure, land use including dust and emissions controls)**
- ⌘ **Wind tunnel testing results DRI**



Other GS/BR Air Quality Research

- ⌘ ***PM₁₀ correlations to meteorology:*** To include four stations, 2 north and 2 south of the Sea. Draft April 30.
- ⌘ ***Temporal match of dust events to Landsat images:*** Draft August 15.

Wind tunnel discussion from DRI

Future steps

- ⌘ **Emissions controls, data management, design of alternatives**
- ⌘ **Sediment sampling**
 - ☒ Identification of constituents of interest (selenium, arsenic, pesticides, etc.)
- ⌘ **Evaluation of potential ecosystem and human exposures**
- ⌘ **Health risk assessment**
- ⌘ **Air quality impact assessment, mitigation**