

In addition, the Regional Water Quality Control Board (RWQCB) is developing Total Maximum Daily Loads (TMDL) for selenium and nutrients in the Salton Sea. TMDLs are based on the quantitative assessments of sources of pollutants to a water body. Each source is allocated a pollutant load so as to reduce levels sufficiently to achieve water quality standards. We encourage Reclamation, IID, CVWD, and MWD, to work with the Regional Water Quality Control Board, EPA and local Indian tribes as they develop TMDLs and other measures to address water quality problems.

Proposed actions to reduce the amount of water applied to agricultural fields to achieve the objectives of the water transfer should be consistent with Best Management Practices employed to achieve TMDL load values. We note that the costs and risks associated with on-farm irrigation system improvements can be reduced by integrating proposed conservation measures with the TMDL program, Farm Bureau's Environmental Quality Incentives Program (EQIP), and EPA's Nonpoint Source Pollution (NPS/319) program.

The DEIS also does not provide sufficient discussion on the potential impact of increased water temperatures or increased concentrations of perchlorate, boron, pesticides, nutrients, sediments, metals, and total dissolved solids in a reduced volume of surface water. Many of these constituents, such as perchlorate, can have serious adverse effects on human health and the environment. We recommend that the FEIS address the potential impacts of water temperature and constituent concentrations related to the reduced volume of drainage water flowing into the New, Alamo, and Whitewater Rivers and the Salton Sea. The FEIS should also provide an evaluation of the cumulative effects of possible increased concentrations of these constituents of concern.

F6-14

F6-15

2. We note that the models (Imperial Irrigation Decision Support System and Salton Sea Accounting Model) used for the hydrological and water quality effects analysis use either the IID drainage system conservation measures or a worst case scenario in which all conserved water is transferred out-of-basin (pg. 3.1- 93 to 101). However, the IID/SDCWA water transfer, as amended by the Quantification Settlement Agreement (QSA), would transfer conserved Colorado River water to Coachella Valley to address their groundwater overdraft problem. Colorado River water would be used in lieu of groundwater or for groundwater recharge. The use of Colorado River water to recharge the overdrafted Coachella Valley groundwater aquifer is a matter of concern for EPA. Furthermore, the DEIS does not evaluate the effects of Coachella Valley groundwater recharge on Indian Trust Assets because the recharge action is a non-federal action. The DEIS does not appear to provide a detailed description or evaluation of potential groundwater effects which may result from the transfer of conserved water to Coachella Valley.

### Response to Comment F6-15

The Proponents recognize that while the impact of recharge on groundwater levels would be beneficial, the impact on groundwater quality in certain parts of the basin is anticipated to be significant because of the higher concentration of TDS and other constituents in Colorado River water than in some local groundwater. With respect to TDS, the anticipated increase would not impair any beneficial uses of the water, as defined by state and federal primary (or health-based) drinking water standards. The higher salinity could exceed recommended secondary water quality standards that deal with aesthetics, such as taste and hardness. The TDS of the local groundwater is also highly variable. There are portions of the groundwater basin with native TDS levels higher than Colorado River water. Mitigation to reduce the higher TDS of Colorado River water to the equivalent of groundwater was evaluated and determined to be financially and environmentally infeasible.

The California Department of Health Services (DHS) set a provisional action level for perchlorate at 18 ppb until January 18, 2002, when it was lowered to 4 ppb. An action level is not an enforceable drinking water standard, but a health-based advisory level for chemicals that do not have formal maximum contaminant levels. DHS establishes an action level as a guidance tool when they do not have a regulation for a contaminant and want to provide some guidance for utilities. If an action level is exceeded, state law requires the public water system operator to inform its governing body and the regulatory agency. DHS recommends but does not require public notification as well.

In March 2002, the State Office of Environmental Health Hazard Assessment proposed a public health goal (PHG) of 6 ppb for perchlorate. A PHG is the first step in developing an MCL (DHS' goal is to have an MCL for perchlorate by 2004). A PHG is a concentration at which no adverse health effects would occur after a lifetime of consumption of water at this concentration. No federal drinking water standard has yet been set for perchlorate.

Perchlorate enters the Colorado River water system along Las Vegas Wash, which drains into Lake Mead. Perchlorate concentrations decrease as Colorado River water flows down river because of incoming flows. Water from MWD's Colorado River Aqueduct had perchlorate concentrations ranging from 4 to 8 ppb between 1997 and 2001. IID reports perchlorate concentrations in the All American Canal

### **Response to Comment F6-15 (continued)**

of 4.2 to 5.3 ppb during 2001-2002. The CVWD water samples found no perchlorate in water from the Coachella Canal (the detection limit is 4 ppb). In 2001, CVWD tested all its active wells in May and in October/ November. Only one well near Avenue 54 and Jefferson had detectable perchlorate (5.0 and 5.9 ppb from two different laboratories).

At the same time, the Nevada company responsible for the perchlorate entering Las Vegas Wash constructed and is operating a perchlorate treatment system. The treatment processes are anticipated to significantly decrease perchlorate concentrations in Las Vegas Wash, and thus in the Colorado River water, over approximately the next 6 years. The date cannot be predicted exactly as the concentration is also a function of flow in the river, which is dependent on rainfall. Perchlorate sediments already exist in Las Vegas Wash sediments and will be flushed out over time at a rate that depends on rain events. By the time the Dike 4 area recharge basin goes on line in roughly 2005, the perchlorate level in the Colorado River water from the Coachella Canal will be lower than at present. In addition, CVWD groundwater modeling estimates that the recharge in Dike 4 will take approximately 10 to 20 years to reach the Torres Martinez wells.

Should recharge of Colorado River water cause any Torres Martinez domestic drinking water well to exceed any recognized health-based water quality standard, CVWD will work with the Tribe to bring the drinking water supply of the Tribe into compliance by either providing domestic water service to the Tribe from the District's domestic water system, or by providing appropriate wellhead treatment.

The lack of such an evaluation is problematic since the QSA Draft Program EIR states that the use of Colorado River water, which is high in total dissolved solids (TDS), for groundwater recharge, could cause the lower aquifer groundwater to exceed EPA's 500 milligrams per liter (mg/l) water quality standards. The proposed groundwater recharge area is located near Martinez Canyon below Lake Calhoun, less than one mile from a primary drinking water well for the Torres Martinez Indian Reservation. Other tribes within the Coachella Valley, the Cabezón, Agua Caliente, Twenty-Nine Palms, and Augustine tribes, may also have concerns regarding potential adverse effects to their groundwater resources.

In addition, perchlorate has been detected at concentrations from 4 to 10 parts per billion (ppb) in Colorado River water at sampling points between Hoover Dam and the Mexican Boundary since testing began in 1997, including 8 ppb in the most recent Hoover Dam sample on February 22, 2002. On January 18, 2002, the California Department of Health Services (CA DHS) lowered the State Action Level for perchlorate in drinking water to 4 ppb and requires water agencies to notify public officials if this level is exceeded. Thus, the water that will be used to reduce the groundwater overdraft could exceed recommended drinking water standards for perchlorate, potentially adversely affecting a drinking water source of the Torres Martinez Tribe.

*Recommendation:*

EPA understands that Reclamation, IID, CVWD, and MWD chose to defer evaluation of Coachella Valley groundwater effects to CVWD's Water Management Plan Draft EIR. We note that this document has not been released for public review. Furthermore, its proposed release date continues to be delayed. In the interest of full disclosure, we believe that the FEIS should include a more detailed description of the Coachella Valley Water Management Plan. This description should include, to the maximum extent feasible, a detailed evaluation of potential adverse effects of the groundwater recharge, as proposed, on tribal and Coachella Valley drinking water sources and groundwater quality. There is concern that the aquatard between aquifers could be permeable, resulting in the contamination of the higher quality aquifer used for drinking water. If there is a risk of contamination to tribal or other drinking water sources, the FEIS should evaluate potential mitigation measures.

3. As we have indicated in the previous comment, EPA is concerned with the potential cumulative impacts of the proposed IID/SDCWA water transfer and related actions on perchlorate concentrations and distribution in water provided for drinking water use. Perchlorate is a serious concern because of its potential adverse health effects, particularly to children. Perchlorate has been on the Contaminant Candidate List for several years. EPA is in the process of developing information that would support a specific regulatory level. As of January 2001, perchlorate was included in EPA's nationwide "Unregulated Contaminant Monitoring Requirement" for public water supplies, with a method detection level of 4 ppb.

**Response to Comment F6-16**

See previous response given for Comment F6-15.

As noted above, CA DHS has recently lowered the State Action Level for perchlorate in drinking water to 4 ppb, requiring water agencies to notify public officials if this level is exceeded. As the first step in developing an enforceable Primary Drinking Water Standard for California, the California Office of Environmental Health Hazard Assessment has begun accepting public comments on a draft Public Health Goal of 6 ppb for perchlorate in drinking water supplies. EPA's National Center for Environmental Assessment recently published a draft Toxicity Health Assessment recommending a dose of approximately 1 ppb as a safe level for perchlorate in drinking water.

*Recommendation:*

We recommend the FEIS provide data on the predicted levels of perchlorate in Colorado River water diverted for domestic drinking water use. If no data is available, we urge Reclamation, IID, CVWD, MWD and other Colorado River interests to work together to develop and implement monitoring and research programs to obtain this data. The FEIS should describe existing or planned actions to obtain additional information on levels of perchlorate and to address the presence of this contaminant in water taken from the Colorado River.

F6-16

4. The Regional Water Quality Control Board is developing TMDLs for various contaminants in the Salton Sea, New, Alamo and Whitewater Rivers and agricultural drains. Implementation of the specific TMDL program may or may not be consistent with the activities to be undertaken to reduce water use associated with the water transfer.

*Recommendation:*

EPA has a strong interest in ensuring actions that may affect the Salton Sea are consistent with TMDL requirements and the need to meet water quality standards. Therefore, we recommend TMDL actions be integrated into the proposed IID/SDCWA actions, where applicable, and their impact on the objectives of the transfer fully described in the FEIS.

F6-17

5. It is likely that tilewater salinity and selenium loadings are not uniform across IID's service area.

*Recommendation:*

We urge voluntary implementation of water conservation measures and fallowing on lands identified as contributing the highest contaminant loadings to the New, Alamo, and Whitewater Rivers, Salton Sea, and IID drains.

F6-18

6. Until recently, the US Geological Survey (USGS) performed regular monitoring of water quality in the Lower Colorado River. As part of the National Stream Quality Accounting Network (NASQAN), this vital water supply was well characterized by this comprehensive and

F6-19

**Response to Comment F6-17**

IID does not anticipate that implementation of the Project or alternatives will interfere with implementation of TMDL BMPs and compliance efforts. On-farm conservation methods may in fact help the District and its water users reach targets associated with the TMDL program.

IID and its water users intend to comply with the silt TMDLs as agreed to in the Basin Plan Amendment adopted by the California Regional Water Quality Control Board (Regional Board) specifying compliance measures based primarily on farmer implementation of BMPs. IID has been actively involved in development of the silt TMDLs for the Alamo and New River and for flows contributing directly to the Salton Sea. And in response to the developed TMDL, the District also cooperates with the Imperial County Farm Bureau on a voluntary compliance program.

IID is also working with the Regional Board to develop a nutrient TMDL for the Salton Sea, and foresees similar compliance programs based on BMP implementation.

According to discussions with the Regional Board, the proposed effort targeting selenium reduction will result in a TMDL that will be implemented throughout the Colorado River Basin and will focus on source reduction in the Colorado River Basin.

Please also refer to the Master Responses on *Hydrology—Selenium Mitigation* and on *Hydrology—TMDLs* in Section 3 of this Final EIR/EIS.

**Response to Comment F6-18**

The commenter suggests selection of lands for implementation of water conservation measures and fallowing based on the level of contribution of these lands to contaminant loadings. In fact, evidence suggests that the level of contaminant loading in a particular area is more dependent on management practices than on local land characteristics, particularly when the constituents of concern are salinity and selenium. In the case of the IID water service area, the source of these contaminants is the Colorado River supply water rather than the leaching of the local soils. Therefore, implementation of water conservation measures are likely to have similar overall contaminant loading implications regardless of the specific location of implementation.

**Response to Comment F6-19**

Comment noted.

long-term monitoring program. As of October 2000, the monitoring program has been curtailed, due to lack of funding.

*Recommendation:*

With the potential changes in the management of flow and storage in the Colorado River system and increased use of the water for direct human consumption, a reliable and comprehensive monitoring program relating to water quality is critical. The FEIS should describe any actions taken to support including the Colorado River in the NASQAN. We urge Reclamation, IID, CVWD, and MWD, as managers and users of the Colorado River resource, to advocate for and pursue funding to restore the USGS NASQAN effort, a critical part of water quality monitoring of the Colorado River.

**Response to Comment F6-20**

Please refer to the Master Response on *Air Quality—Salton Sea Air Quality Monitoring and Mitigation Plan* in Section 3 of this Final EIR/EIS.

**Air Quality**

1. The IID/SDCWA water transfer could result in exposure of 67,000 acres (approximately 105 square miles) of land currently inundated by the Salton Sea. The DEIS states that the surface elevation of the Salton Sea is expected to decline at a faster rate and to a greater extent with the water transfer. The evaluation of soils and potential air quality impacts states that exposed Salton Sea sediments would dry with a crust covering which would minimize the ability of winds to generate dust emissions (pg. 3.3-23).

EPA disagrees with the statement that the exposed lake bed, caused by reduced inflows to the Salton Sea, would dry and form a crust covering which would minimize the ability of winds to generate dust emissions. EPA believes that the crust formed may breakup under natural events similar to the Owens dry lake bed in California. These natural events could come from ground water evaporation, surface moisture, or rain. EPA also believes that human disturbances associated with off-road vehicle traffic (dune buggies, all-terrain vehicles, and dirt bikes) as well as hunting, fishing, boat launching activities and foot traffic could fracture the crust. These events can cause the surface to crack and, when exposed to wind, will contribute to particulate matter less than 10 microns in diameter (PM10) emissions. The Owens dry lake bed is approximately 105 square miles of which 35 square miles (22,400 acres) are highly emissive. Crust formations do accrue upon the Owens dry lake bed that can sustain the weight of a car. As the weather changes, these surfaces break up and cause the worst PM10 emissions in the United States.

EPA objects to the potential air quality impacts of exposed Salton Sea sediment. Our objections are increased by the lack of information and data regarding constituents of the sediments and its potential behavior when exposed to high winds and human disturbance. We note that there is widespread local concern regarding the constituents of the exposed sediment and its potential to cause adverse human health and environmental effects.

*Recommendations:*

We strongly recommend that Reclamation and other stakeholders initiate and participate in a study to determine the durability and sustainability of crust formations on the exposed Salton Sea shoreline. We note that the composition of the sediments and weather patterns may vary along the shoreline and affect crust formation. This fact should be considered when designing the study.

We recommend that the FEIS include a description of the composition of the sediments and the risk of adverse human health and environmental effects if this sediment becomes airborne. If specific data is not available, the FEIS should describe research and data needs and commit to participate in efforts to obtain this critical information.

The FEIS should also evaluate possible control measures for the newly exposed shoreline. Control measures could include, but are not limited to, the introduction of native plants to provide ground cover. Human disturbances along the exposed shore line should also be addressed as they too can contribute to PM10 and dust emissions. It may be necessary to limit public access to certain areas of the shore line. A PM10 monitoring network should be established around the Salton Sea as soon as possible in order to determine baseline emissions and for use in determination of PM10 violations of the National Ambient Air Quality Standards (NAAQS).

F6-20

2. The use of conserved water to replace the loss of inflow into the Salton Sea has been suggested as mitigation for potential air quality impacts from exposed sediments (pg. 3.7-36). Replacement water would maintain the existing inflows to the Salton Sea, avoiding and minimizing the reduction in the Sea's surface elevation and exposure of currently inundated land. The DEIS also suggests that a Salton Sea monitoring and mitigation plan could be developed with the South Coast Air Quality Management District and Imperial County Air Pollution Control District (pg. 3.7-36).

F6-21

*Recommendations:*

EPA recognizes water conservation and fallowing as tools to avoid, minimize and mitigate for potential impacts of the proposed actions. Thus, we wish to acknowledge the second mitigation strategy of utilizing conserved water to help address adverse air quality impacts of the IID/SDCWA water transfer. We note that fallowing is a very controversial issue and has been rejected by many of the local communities. We recommend the FEIS provide a more detailed evaluation of the feasibility and process of using conserved water to avoid and minimize adverse air quality effects on the Salton Sea.

**Response to Comment F6-21**

Please refer to the Master Response on *Air Quality—Salton Sea Air Quality Monitoring and Mitigation Plan* in Section 3 of this Final EIR/EIS.

F6-21

The FEIS should also describe other mitigation measures which could help address adverse effects of exposed Salton Sea sediments. We urge Reclamation, IID, CVWD, and MWD to work with affected Air Pollution Control Districts and Management Districts to develop a detailed monitoring and mitigation plan. The monitoring and mitigation plan should be included in the FEIS, if possible.

**Response to Comment F6-22**

Both square feet and acre units have been provided for the convenience of the reader.

F6-22

3. The projected change in Salton Sea surface elevations and exposed shoreline is described and evaluated under a number of resource areas (hydrology and water quality, air quality, recreation). The unit of measurement and numbers are not consistent with differences of up to 7 feet (15 foot drop versus a 22 foot drop) in the estimate of surface elevation changes. Given the shallow north and south shorelines, these differences could translate to significantly different estimates of exposed shoreline (50,000 acres versus 67,000 acres).

**Response to Comment F6-23**

Reclamation sent a memorandum to 55 Indian Tribal representatives on April 26, 2001, inviting them to enter into government-to-government coordination pursuant to CEQA regulations for implementing the procedural provisions of NEPA; the National Historic Preservation Act; and Executive Order 13175 of November 6, 2000, pertaining to consultation and coordination with Indian tribal governments. Reclamation has met with CRIT staff and has had numerous telephone conversations to discuss potential impacts to the CRIT from the proposed action, and is providing a grant to CRIT under which CRIT has hired an independent consultant to review the hydropower-related studies conducted for this EIR/EIS. At CRIT's request, a formal government-to-government consultation meeting will not occur until after this review has been completed. Please also refer to the response given for comment T2-11.

*Recommendation:*

The FEIS should correct these inconsistencies. For instance, Table 3.6-4, Recreation (pg. 3.6-12) should match numbers in Section 3.1 on Hydrology and Water Quality and Section 3.7 on Air Quality ( pg. 3.7-34). We recommend the FEIS use either square miles or acres instead of using these measurement units interchangeably.

**Tribal Resources and Consultation and Coordination with Indian Tribal Governments**

F6-23

1. The evaluation of impacts to Indian Trust Assets is limited to potential impacts from Federal actions within the Lower Colorado River and Salton Sea geographic subregions. EPA objects to the lack of evaluation of potential impacts to Indian Tribes or Indian Trust Assets from all proposed actions and the limited geographic scope of the evaluation. A total of thirty-five Indian tribes (see attached list) could be affected by proposed IID/SDCWA water transfer actions and related actions such as the Interim Surplus Guidelines and QSA: five tribes on the lower Colorado River; six tribes in the Salton Sea watershed; six tribes that use or may be affected by the Central Arizona Project; and 18 tribes within San Diego County. Furthermore, there are a number of tribes (Torres Martinez, Coachella Valley Tribal Consortium, and 18 tribes in San Diego County) that could be directly affected by IID/SDCWA water transfer actions. These tribes have broad regulatory and land management authority for resources within and traversing their reservations. For instance, the Torres Martinez and Coachella Valley Tribal Consortium are currently establishing beneficial use criteria for waters in and under their reservations and are developing water quality standards and TMDLs to protect these uses.

A Reclamation staff person has also met with representatives of the Torres Martinez Band of Desert Cahuilla Indians to discuss potential impacts to the Salton Sea and the Tribe's reservation, portions of which lie beneath the Sea. FWS sent a letter to the Torres Martinez Band of Desert Cahuilla Indians on March 14, 2002, requesting a government-to-government consultation meeting, and the meeting was held on April 12, 2002. The meeting was attended by representatives of the Torres Martinez Band of Desert Cahuilla Indians, Reclamation, USFWS, the Bureau of Indian Affairs, and the EPA. USFWS also sent a letter on April 8, 2002 to five Tribes in the Coachella Valley, offering technical assistance and government-to-government consultations regarding the water transfer.

The Cocopah Indian Tribe has expressed concern about the cumulative decrease in water to the Limitrophe. The Limitrophe is a 22-mile stretch of the Lower Colorado River that forms the boundary between Mexico and the US, as agreed to in the Gadsden Treaty (1853). It is a major part of the Cocopah Tribal lands. The Cocopah are working to have the Limitrophe designated an International Wildlife Refuge. Furthermore, the Tribe exists on both the US side

This Final EIR/EIS includes an evaluation of potential impacts to Indian Tribes in the Coachella Valley, based on planned water use by CVWD. We believe the SDCWA and MWD service areas were correctly excluded from the evaluation, since the Proposed Project would not result in construction or operation of new facilities in the service areas. The CAP Tribes were not included in the evaluation because the water transfers would have no effect on CAP water deliveries.

### **Response to Comment F6-23 (continued)**

With respect to the Cocopah Tribe, the proposed water transfers would not impact normal river flow in the portion of the Colorado River system below Imperial Dam. There would be slight changes in excess flows (e.g., primarily flood control operations at Hoover Dam) as a result of the proposed Inadvertent Overrun Policy. The impact to excess flows in this reach of the river is described in the IA EIS (see Section 3.12.2 or Appendix C). The Final EIR/EIS correctly concludes that there would be no adverse impact to Tribal Trust Assets of the Cocopah Tribe.

and in the Colorado River delta on the Mexican side and has a strong interest in restoring the Colorado River delta region.

*Recommendations:*

We strongly recommend that all potentially affected Indian Tribes be consulted on a government-to-government basis. For assistance you may contact James Fletcher, Region 9 EPA, State, Tribal, and Municipal Programs Office, 619-235-4763 (place-based in San Diego, CA) or Clancy Tenley, Manager of the Indian Programs Office, 415-972-3785.

The FEIS should evaluate the potential effects of all IID/SDCWA water transfer actions on Indian Tribes and their Trust Assets, including those of the Cocopah and other Colorado River Tribes. Of specific concern are potential adverse groundwater effects from the use of Colorado River water for groundwater recharge in the Coachella Valley (see Water Quality comment #2 above).

2. The Torres Martinez Indian Reservation is adjacent to and partially inundated by the Salton Sea and will, therefore, be adversely affected by identified impacts to the Salton Sea. In fact, nearly 12,000 acres of the Reservation is currently inundated by the Salton Sea. Part or all of this inundated land may be exposed under IID/SDCWA water transfer actions.

The Salton Sea was designated as an agricultural sump for drainage water in 1922. There are data suggesting that the water and accompanying sediment contain contaminants such as metals, perchlorate, pesticides and nutrients. There is concern regarding the impact of exposure of these sediments in the region, particularly in light of the stated potential need to limit public access to prevent adverse air quality impacts. We note that the Torres Martinez Desert Cahuilla Settlement Claims Act addressed damages caused by the flooding of tribal property and provided for a permanent flowage easement on tribal land at elevations lower than -220 mean sea level (msl). The Act does not specifically address potential damage to inundated land caused by deposition of potentially contaminated sediment.

*Recommendation:*

Additional research and data collection is needed before a determination can be made as to the use of and potential impacts from exposed Salton Sea sediment. We recommend the FEIS describe existing research on Salton Sea sediment and the efforts to obtain more data. For instance, the Regional Water Quality Control Board has recently entered into an agreement with the Torres Martinez to conduct water quality sampling and sediment analysis for various constituents; and the Salton Sea Science Subcommittee funded studies on the physical and chemical properties of the water and sediment in the Sea.

**Response to Comment F6-24**

(**Note:** In addition to the sediment information summary presented here, please also refer to the Master Responses on *Air Quality—Health Effects Associated with Dust Emissions* and on *Air Quality—Salton Sea Air Quality Monitoring and Mitigation Plan* in Section 3 of this Final EIR/EIS for more information on plans to evaluate and mitigate for potential health effects associated with exposed sediments. See also the EPA website factsheet on Selenium [EPA 2002].)

A number of historical studies have been conducted to assess the chemical quality of sediments underlying the Salton Sea. Most of the studies have been limited in spatial extent to locations of particular interest or concern and often to specific constituents of concern. However, one 1999 study involved a widespread reconnaissance investigation of Salton Sea sediments, and sediment samples were analyzed for a suite of organic and inorganic constituents.

The results of these studies represent a starting point for assessing the potential human health and/or ecological impacts of the exposure of Salton Sea sediments that would occur if the level of the Salton Sea recedes in the future. However, human and ecological risk is a combination of the presence of constituents of concern and the pathway or exposure, as discussed in the Master Response on *Air Quality—Health Effects Associated with Dust Emissions*.

**Widespread Survey of Salton Sea Sediments**

LFR Levine-Fricke (1999) conducted sediment samples in two phases from bottom sediments across the entire Salton Sea. A total of 57 grab samples (0 - 15 cm) and 16 core samples (0 - 180 cm depth in 30-cm increments) were collected in both phases and analyzed for a range of inorganic and organic chemicals of interest.

Inorganic chemicals were identified by the authors as being of "potential ecological concern" if concentrations were found to be in excess of a maximum baseline concentration for soils in the western U.S. The inorganic constituents found to be of potential ecological concern were:

- Cadmium
- Copper
- Molybdenum
- Nickel
- Zinc
- Selenium

### **Response to Comment F6-24 (continued)**

The concentrations of these elements were compared to reference values for potential effects of concentrations on organisms living in submerged sediments where these concentrations exist. The primary reference values used by the authors for comparison of these sediment concentrations are National Oceanic and Atmospheric Administration (NOAA) biological effects range low (ERL) and effects range medium (ERM). ERMs are concentrations at which 50% of the studies for a particular chemical showed biological effects, and ERLs are the concentrations at which 10% of the studies showed biological effects. ERLs are generally interpreted to be "rarely" associated with adverse ecologic effects. However, no ERL or ERM values are reported for selenium or molybdenum, so alternative references were chosen for these. For selenium, the reference value selected is sediment concentrations recommended by the San Francisco Regional Water Quality Control Board as suitable for use in cover (0.7 mg/kg) and non-cover (1.4 mg/kg) sediment in created wetlands. For molybdenum, the maximum baseline value for western soils (4.0 mg/kg) was used for comparison. Reported ranges of concentrations of these inorganic elements of concern are summarized in Tables 1 and 2.

Note that these reference values, except for the western soils baseline value, are associated with potential effects of concentrations on organisms living in submerged sediments.

For potential human effects comparison, additional reference values, the EPA Preliminary Remediation Goals (PRGs), are reported in Tables 1 and 2. The PRGs combine current EPA toxicity values with "standard" exposure factors to estimate contaminant concentrations in environmental media (soil, air, water) that are considered protective of humans, including sensitive groups, over a lifetime (EPA, 2000). Exceeding a PRG suggests that further evaluation of the potential risks that may be posed by site contaminants is appropriate. The PRGs reported here represent standard exposure factors and do not necessarily reflect site-specific risk due to unique circumstances. The PRGs reported here are for residential and industrial soil settings.

The inorganic constituent identified by the LFR Levine-Fricke study as being of highest potential concern was selenium. Most selenium concentrations measured were in the range of 0 - 2 mg/kg, but 10 out of 73 samples were above 2 mg/kg, with a maximum of 8.5 mg/kg. The highest selenium concentrations were found in the northern two-thirds of the lake.

Another potential chemical of concern detected in the lakebed sediments is arsenic. The LFR Levine-Fricke study did not find elevated levels of arsenic in the Salton Sea sediments relative to the maximum baseline concentration for soils in the western U.S., and therefore, it was not characterized by the study as being of potential ecologic concern. In fact, as shown in Tables 1 and 2, the background level of arsenic in the some western U.S. soils already exceeds EPA's Preliminary Remediation Goal (PRG) for arsenic in residential soil.

Levels of a range of organic constituents were also measured as part of the study, but generally low and narrow ranges of concentrations were measured (see Table 3).

#### **Focused Sediment Sampling in Alamo River Delta Area of Salton Sea**

Setmire et al. (1993) conducted sampling of bottom sediments in a small area in the southeast portion of the Salton Sea near where the Alamo River enters the Sea. Sediment samples were collected at 16 sites. Selenium concentrations in these sediments ranged from 0.2 mg/kg to 2.5 mg/kg. **Other Sediment Concentration Reports**

A number of other more limited studies have collected and analyzed Salton Sea sediment samples. These sampling efforts were mostly targeted to specific locations where problems due to local conditions were expected to exist. Specific examples include offshore of the U.S. Navy's Salton Sea Test Base, where non-explosive test ordnance has been dropped into the sea, and the outlets of major tributaries such as the Alamo and New Rivers. In these areas, elevated concentrations of specific organic and inorganic constituents associated with specific activities or land uses in these areas have been found.